

American Forests *and* Forest Life



April, 1927

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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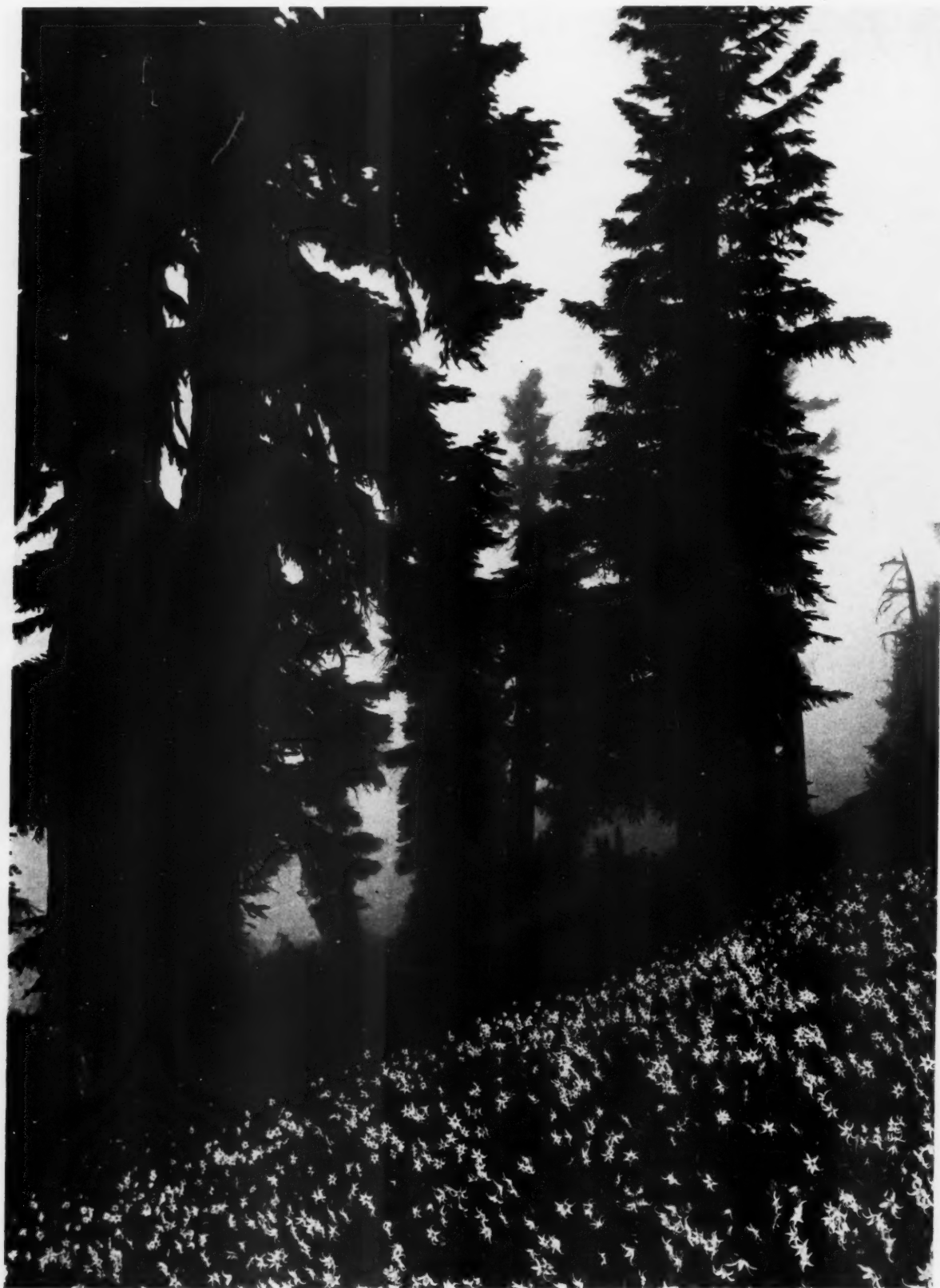
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AMERICAN FORESTS AND FOREST LIFE invites contributions in the form of popular articles, stories and photographs dealing with trees, forests, reforestation, lumbering, wild life, hunting and fishing, exploration or any of the many other activities which forests and trees typify. Its pages are open to a free discussion of forest questions which in the judgment of the editor will be of value in promoting public knowledge of our forests and their use. Signed articles published in the magazine do not necessarily reflect the views of the Association. Manuscripts must be accompanied by return postage. Editorial and Publication Office, The Lenox Building, 1523 L Street, Washington, D. C.



WHEN THE SHADOWS OF EVENING FALL ON MT. RANIER

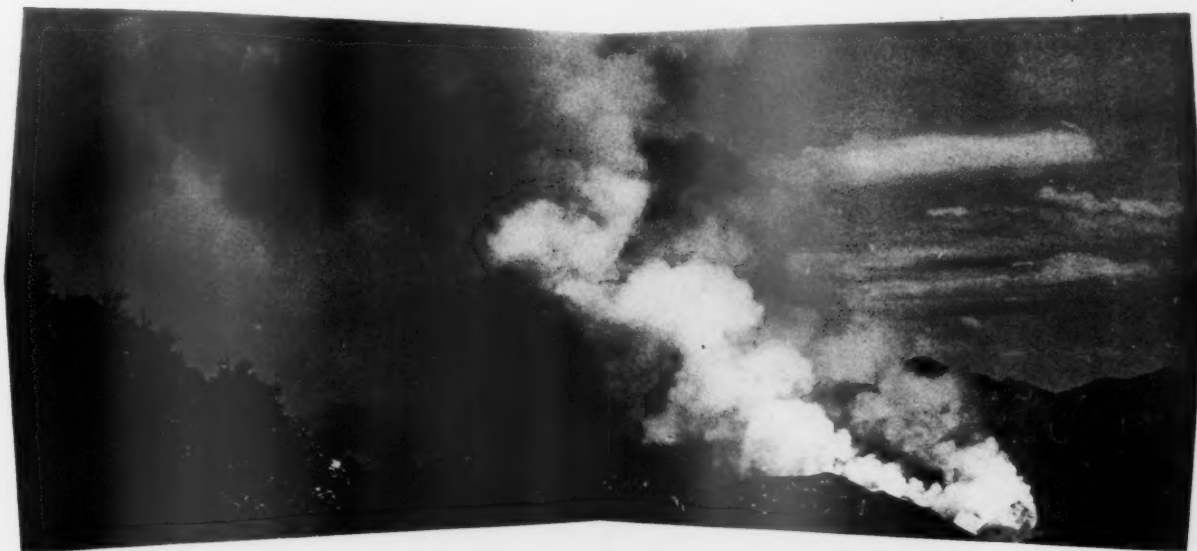
Photograph by John Kabel

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Behind the Scenes in the Fire Game

By HOWARD R. FLINT

With Photographs by the U. S. Forest Service

"HELLO, Warehouse! Hello! That you Jim? Say, listen, Jim.—We've got another Class C up here and she's a dinger. We're strapped. Honest, we haven't even got a can opener left. Send us a 25-man crew. Put a cook and a foreman with 'em. Good uns. And send a complete outfit, grub and all. You bet. Send the works. On Number 4, eh? Well, I guess that's the best that can be done."

The speaker's voice was raised. He just naturally had to raise it, for he was talking to a man a hundred and fifty

miles away. He had to make Jim hear. It took less than one minute to place the order and there was

hardly two hours' time to fill it before train Number 4 left town. Of course, the "Class C," further referred to as "a dinger," was a lively forest fire over 10 acres in extent. The Class B's by the way are under 10 acres and the Class A's are still smaller ones, covering not more than a quarter-acre. Equally, of course, the ranger—for a forest ranger was doing the shouting—wanted an outfit and a crew of firefighters sent out from the Forest Serv-



HEAVY WORK, HEAT, DUST AND SMOKE—THE FIRE-FIGHTER GETS HIS FULL MEASURE OF ALL THESE BEFORE HE IS PERMITTED TO GO BACK OF THE LINES FOR WELL-EARNED REST AND REFRESHMENT



A FIRE CAMP KITCHEN UNDOUBTEDLY LACKS SOME OF THE MODERN CONVENIENCES BUT THEN COOKERY AS A FINE ART IS NOT PRACTICED HERE. IT IS EQUIPPED TO TURN OUT GREAT PANS OF FOOD, CLEANLY PREPARED, AND THAT IS THE ESSENTIAL THING WHEN THE MEN COME IN, WORN FROM LONG HOURS ON THE FIRE LINE, AND HUNGRY AS THE PROVERBIAL BEAR

ice warehouse to help combat the latest disaster on his quarter-million-acre district of wild mountain forest in Northwestern Montana. Men, equipment, and supplies for the smaller fires are kept in constant readiness locally, at or near ranger headquarters, and it is only after this local supply is all in use or exhausted that the central warehouse comes into the picture. Its equipment is made up in units for 15 and 25 men.

This order to Jim made scarcely a ripple in the busy flow of the day's work. The five or six busy men didn't even hurry, they just kept on. Someone stuck a stenciled sign in the window. It was decidedly not an ornamental sign. It had not been "designed"—just made. No advertising expert had carefully weighed its psychological effect. It was the essence of brevity: FIREFIGHTERS WANTED. Nothing more—except the subtle "pull" which advertising experts rave about and all the rest of us pay for whether or not we want it. Soon men began to drift in by ones and twos. They were plentiful. The employment officer was critical. He turned back this one because of poor footwear, that one because he had too far frustrated the purpose of the Volstead Act, another because he was too old for hard labor, and two kids because they were obviously

seeking adventure rather than long days of grilling hard work. Nevertheless, in a few minutes over an hour 25 selected men had signed contracts of hire and had been instructed to meet train Number 4 for departure. Three others, not signed up, were advised to be at the depot on the chance that one or more of those who had signed might fail to appear.

In the meantime, how about the supplies and equipment? It takes a lot of things properly to equip 25 firefighters for action and life for an indefinite period in some remote part of the mountains. To begin with, there is the matter of food. Perhaps Napoleon really did say, "An army marches on its belly," or words in French to that effect. Maybe he never said it. It doesn't matter. An essential fact in the present story is that large forest fires are fought with food—grub. It takes great gobs of grub. Unless one has cooked for them or worked and eaten with them he has no conception of the amount of solid food it takes to maintain a 25-man crew on the line, not to mention the gallons and gallons of strong coffee. And the food musn't follow behind the crew. It must go with them, better yet, ahead of them, if that is possible. Morale, never rampant with a picked-up crew of transient laborers, simp-

ly ceases to be if ever it leaks out that the grub is short, late, or poor. If there is to be any successful fire fighting with temporary Western laborers, those slips in tactics simply must not be allowed to happen.

What is grub for 25 firefighters? Well, statistics are a bore and lists are tiresome to read. Sufficient to say that there are 54 separate articles of food and condiments on the regular 100-ration list of supplies which Jim sent out to the ranger to stand between the valiant twenty-five and starvation for a period of four days.

The food on that list, packed for shipment, weighs about 700 pounds. Exclusive of packing there is about 525 pounds of food, mostly pretty substantial chuck. That is about five pounds a day for each man. It is, perhaps, only a coincidence that Steffanson, the Arctic

explorer, found that a man on hard work in the Arctic consumed just about five pounds of fresh meat daily. Unfortunately, firefighters are less stoical and less philosophical in matters pertaining to food than Steffanson and his followers. The diet he found equal to every human need consisted of meat alone, with only water to drink. On the firefighter's menu there are 54 items of food and condiments. In addition, he must have tobacco in abundance and in at least three forms, if he is to be kept on the job. Firefighters must be a pampered and overfed class of men, you say? Well—scarcely that. For they average twelve hours a day of heavy physical labor, performed usually under stifling

heat. Smoke, dust, and ashes clog the air they breathe. No chance to bathe until the job is finished. Sleep in a very thin bed out on the ground, often under the night chill of the mountains. That is not the average man's idea of luxury and pampered ease. Only the hardy endure it for a week and a few of the

toughest last 20 days or more without a break.

Do they have beds? Assuredly. Beds form a part of "the works" which the ranger ordered. In this region custom rules that the employer of a transient laborer must feed him and bed him. Only a few old-timers, genuine hill-billies, pack their own bed rolls in these enlightened times. For the care-free, rolling stone, moss must be provided by the employer when the roller comes to rest. At the beginning of the season in this ware-



A FIRE CAMP SCENE AT THE SUPPER HOUR—PLATES ARE LOADED, RE-LOADED, AND THEN LOADED ONCE AGAIN, TILL EVERY MAN IS FILLED

house, there were a full thousand individual bed rolls. Each roll consists of a single and a double army blanket, an army shelterhalf, a canvas tarpaulin about 7 feet wide by 14 long, all thoroughly laundered since last used, sufficient moth balls to discharge the hungriest caterpillar, and a piece of quarter-inch rope long enough to tie the whole into a compact roll about 8 inches in diameter and 32 inches long. The weight of such a roll is 20 pounds. Ordinarily, the rolls are done up in bundles of five and it so happens that 100 pounds is a good side pack for a husky pack mule. Two such "sides" carried all day over a mountain trail make a load well calculated to keep the mule from

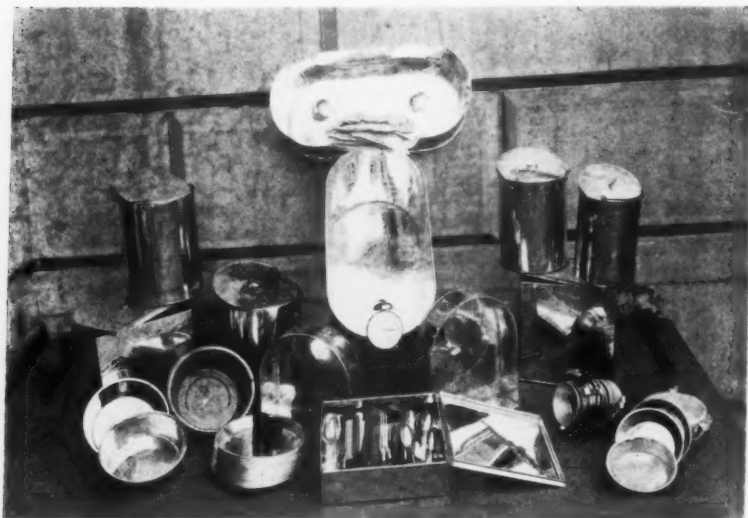


TABLE-WARE EQUIPMENT FOR A 25-MAN OUTFIT FOR USE IN THE FIELD, READY FOR NESTING. IT IS COMPLETE FROM ALARM CLOCK TO DISH TOWELS! THE AVERAGE WEIGHT IS ABOUT 80 POUNDS

light-footed and facetious behavior during his hours of toil and of leisure. Still, in the mule's presence, the initiated maintain a reasonable measure of caution even at the close of such a strenuous day.

Now about the shelterhalf in that bed. Of course, the ex-soldier knows what to do with it. Most of the other men have to be shown. One puzzled and unregenerate firefighter studied the peculiar shape and the many buttons and loops of the khaki-cloth contraption and concluded that some office stenographer had misplaced her riding habit. Really, all shelterhalves are just alike, and any two of them can be buttoned together to form a "pup tent" which will quite effectively shelter a double-width bed from dew, rain, or snow. Sleeping tents other than these are not supplied with standard fire outfits. Of course, if a firefighter desires luxury he may soften his bed with fir boughs, bear-grass, or pine needles. More often he doesn't take the trouble.

Before a firefighter is permitted much rest he must expect to render some measure of physical toil. Tools suited to such effort are provided in abundance and quality in the outfit the ranger ordered. Experience has taught that a wide range of conditions may be expected on forest fires of the mountain region. One fire may be in heavy timber, calling for an abundance of axes and saws for use in falling snags or cutting off burning logs; another may be in brush, where saws are wholly useless; and a third may be beside a creek, where pumps, canvas buckets, tin cans, and water come prominently into play. All these conditions and more are anticipated in the outfit Jim checks out of the warehouse by a standard list too lengthy for inclusion here.

None but the best quality of tools is bought. Every tool has been properly fitted to a handle, sharpened, branded, and oiled to keep it from rusting. Every piece is inspected, counted, and checked in packing and is ready for service when it leaves the warehouse. Tool sharpening and fitting is a most important part of fire fighting, but nearly all of it can and should be done by skilled men working at a good bench in the warehouse when the winter snow blankets the mountains. Of course, tools quickly become dull on the job, and files, whetstones, and carborundum grinders come into play about night of the first day of serious fire fighting. Very early in the game, at least



BOTH FIRE EQUIPMENT AND SUPPLIES FOR THE FIRE FIGHTERS USUALLY MAKE THE LAST LAP OF THE JOURNEY ON PACK ANIMALS. THIS SHOWS A TYPICAL PACK OUTFIT ON THE LOLO NATIONAL FOREST

one skilled man must be detailed to tool sharpening.

With so many tools, enough for a thousand men in one warehouse, they can't just be thrown into any job lot of odd-sized and various-shaped boxes. In the pioneer days, before the beginning of systematic fire fighting, that was tried and found costly. The outfit Jim put on the train to fill the ranger's order went in substantial boxes with hinged lids. Each box was neatly painted, and on it weight and contents and the address of the warehouse were plainly stenciled. No box in the entire outfit weighs more than about 100 pounds when packed. Fragile articles are not packed indiscriminately with a lot of heavy cast-steel mattocks. Edged tools, such as axes and cross-cut saws, are put in specially designed boxes to protect the tools and those who handle them. Occasionally, a fine horse or pack mule has been ruined by an unwisely packed cross-cut saw, and every article must be put up in such shape that it can readily be put on a pack animal. In exceptional instances, the entire outfit must finish its journey on men's backs, for forest fires in the mountains have a way of getting into some inaccessible places.

Cooking utensils and camp equipment must be carefully considered. With 25 men, one of them by his own admission the best camp cook on earth, going into the woods for an indefinite term and taking with them for each four days about 525 pounds of raw food supplies, it is well for someone to ponder ways and means of converting those supplies into edible "grub." Few people have the remotest idea of the number and variety of articles that go to make up the equipment of a well-appointed kitchen and dining room. Of course, many of those things—for example, salad forks, individual bread-and-butter plates, napkins, and finger bowls, are not strictly essential to the consumption of great quantities of provender. Now the average firefighter is rather more of a trencherman—a beef

eater, a gourmand, than he is a connoisseur in rare tableware and table etiquette. He is disposed to specialize on quantity, speed, and more quantity rather than on daintiness, luxury, and refinement of method. To provide for this requires kitchen and table equipment suitable in kind and in quantity. How much

quantity? Well, there are 462 pieces in one of the standard kitchen and mess outfits for 25 men.

All of these items are put up in two containers: a heavy galvanized boiler but slightly larger than an old-fashioned clothes boiler and of about the same shape, and a wooden box about 12 inches deep by 24 inches square, or, in some instances, a second boiler. It may be only fair to add that the novice does not put all of it in these two containers on the occasion of his first attempt; usually not until he has some advice and guidance and has made several efforts. The skilled fire warehouseman packs the outfit in a very short time, and on completion of the job has neither space nor articles left over.

The stove is a queer contraption, and many still queerer contraptions have been tried out as candidates for the title of camp-stove. For culinary purposes a few of them

are an improvement over an open fire. All of them are temperamental and each has character and individuality which, at times, provoke eloquent profanity from any but the most patient of cooks. The particular make of stove that has been selected for the fire outfits has several obvious advantages. It is a large stove; the top available for cooking purposes is 18 inches by 22 inches; the fire box is so large that it will take 24-inch wood. Have you ever chopped wood into six-inch lengths to feed some pigmy stove that seemed to have the fuel capacity of a sawmill incinerator? The oven is nearly as large as the fire box. The stove pipe packs inside the oven, and the oven in turn packs inside the fire box. The weight complete is only about 65 pounds and the construction is sufficiently rugged to withstand



THESE MEN ARE STRINGING INSULATED EMERGENCY WIRE TO ESTABLISH COMMUNICATION WITH A FIRE CAMP IN THE BACK COUNTRY. IT IS NOT STANDARD WIRE BUT A HEAVIER TYPE ORIGINALLY DESIGNED FOR USE BY THE AMERICAN FORCES IN FRANCE AND NOW DOING DUTY IN ANOTHER NATIONAL EMERGENCY

intimate association with pack mules and busy packers. With all these limitations and advantages, it is still possible for a skilled cook to do the baking and frying for 25 hungry men on one of these stoves. The boiling is commonly done over open fires close by.

There is always an alarm clock listed with the kitchen and mess outfit. In a well-regulated fire camp breakfast is a serious affair of the very early morning. With much of the preparation for the morning meal out of the way the night before, the cook and his helpers must still arise at about three o'clock in the morning to have breakfast ready about or shortly after daylight. Breakfast is more substantial than

cheerful. The early morning in the mountains is nearly always chilly. Many of the men have not slept warmly and, in many cases, they are thinly clad. Hot coffee, gallons and gallons of it, is the primary requisite. Of course, there must be many other more substantial things on the breakfast menu, but none is quite equal to the coffee in urgency and importance. Along with the coffee go cereals, bacon or ham, potatoes, bread and butter or toast, jam, and either canned or dried fruit. Where transportation is not too difficult, eggs and fresh meat may be served, and in small crews, hot cakes are not an unusual breakfast dish.

All meals are almost invariably served cafeteria style. A long, rough table is built of poles. Dishes and table cutlery are stacked at the head. Big, steaming dishes and pots of food are arranged next. At the foot of the table a caldron of coffee and the "trim-min's," cook and flunky standing behind the table to serve and direct. Plates are loaded, reloaded, and loaded again. In the course of about 15 minutes swallowing becomes temporarily a physical impossibility for each of the diners, and, under the ranger's or camp boss' watchful eye, scraps of food and used dishes are deposited in convenient receptacles. Noon lunches are usually for the most part prepared the night before,

and are carried out individually by the men, in paper or cloth "nosebags." Fires are commonly most active from 11:00 a. m. until late in the afternoon and it is essential to have all hands on the line during those fateful hours.

Since the men may be miles and days of travel

from civilization, a few things other than grub, beds, and tools must be provided. A very small medicine chest containing bandages, about a dozen simple remedies, and a first-aid book is a part of each outfit. Men more or less civilized demand tobaccos, both smoking and chewing, snuff, extra



THE BUSIEST PLACE IN CAMP, AND THE CENTER OF ATTRACTION WHEN THE "BEANS" ARE DISHED OUT. HERE IS TO BE FOUND CONCENTRATION IN ITS HIGHEST FORM, UNTIL THE INNER MAN IS SATISFIED!

socks, and working gloves. These essentials to the standard of living go forth with the crew and are sold out at cost prices as needed. Office supplies, such as forms for keeping time and other records, pencils, maps, and notebooks are essential, and in specially prepared kits go in with the ranger as needed. Footwear is prone to give trouble under rough mountain usage. Therefore, a light cobbler's kit goes with each outfit.

Where the fight promises to be a long one, telephone communication must be promptly established. This is done by means of lightweight portable telephones and insulated emergency wire which may be quickly strung out on the ground or, preferably, hung loosely in the lower branches of the trees. Equipment of this kind is kept in readiness and sent out as needed.

In this particular region, many fires occur in uninhabited country from one to as much as 50 miles from any railway or road. One forest of nearly a million acres has but 12 miles of road, and no permanent resident within its boundaries. In such cases every pound of necessities must go in over single-file pack trails on the backs of horses and mules traveling at the rate of two to three miles per hour. To sustain large crews of men under such conditions calls for careful planning, complete preparation, and infallible execution.

A Wildwood Garden

A Novel Idea Adaptable to Any Locality or Pocketbook

BY MIRA MACLAY

TRANSFORMING a flat, prosaic 50 x 150 city lot into a wildwood garden that has something of the feel and atmosphere of the high Sierras is the work that a Berkeley, California, artist and member of the Sierra Club has laid out for himself—and is successfully achieving. The artist is Cedric Wright, a violinist, who has a studio home, not two blocks from the business world that is rapidly encroaching upon one of the finest old residence sections of the college town of the East Bay district.

Yet Mr. Wright, by wildwood planting, is masking from view conventional neighboring houses, and all suggestion of the rattle and glare of the nearby business district. He is in a word creating a small retreat where the air, on warm days, is sweet as in the woods, full of pungence and tangy scents that bite in delightfully; where the sunshine falls dappled and splashed as in natural leafy glens, and where exists an atmosphere of rest and tranquillity.

Mr. Wright has done all the work himself. He has brought down, a few at a time, from the Sierras and the Santa Cruz mountains, the native shrubs and plants that are working the near-miracle. As in the real woods, the planting is haphazard; not landscaped, but informal, unconventional, natural. That is the keynote to it all—nature. In places, trees and shrubs crowd each other, making the same struggle for survival that takes place in the forest itself.

There are paths, winding as mountain trails wind,



A WALK OF STEPPING STONES, CARELESSLY IRREGULAR, LEADS UP FROM THE RUSTIC GATE TO THE STUDIO DOOR

to the strategic or necessary point. A walk of stepping stones, laid with more than usual careless irregularity, leads up from a rustic gate to the studio door. "Ducks" of granite, brought down from the Sierras, mark the path. Other "trails" lead to the kitchen door, and wind through the thick mass of shrubbery to some fast-growing mountain tree.

Redwoods, madrones, alders, willows, quaking aspens, incense cedar, bay, Douglas fir, white fir, tan oak, white oak, are growing vigorously in this bit of young forest.

Of shrubs there is another profusion—azaleas, toyon, thimble berry, huckleberry, hazel nut, wild currant, wild gooseberry, honeysuckle, Oregon grape, wild rose, snow-



THE WILDWOOD PLANTING—MASSSED NATIVE TREES AND SHRUBS—SERVES TO MASK THE HOUSE FROM VIEW, CREATING A RETREAT WHERE THE AIR IS AS SWEET AS IN THE WOODS, FULL OF PUNGENT AND TANGY SCENTS



THE STUDIO WINDOWS GIVE GENEROUSLY ON THE LEAFY TANGLE THE ARTIST HAS CREATED IN BUILDING HIS "WILDWOOD GARDEN"

berry, wild strawberries creep on the ground. So does the aromatic yerba buena. Ferns and brakes make themselves at home in the shade created by shrub and tree.

Mr. Wright, in transplanting, has, as far as possible, followed the common rule of moving a plant, or tree, at its dormant period. But in bringing growing things down from the high Sierras—a distance of several hundred miles—he has often done as he could, not as he would. A discarded hiking sock has furnished the “quarters,” en route, for some of his choicest and most treasured specimens, transplanted, from necessity, out of season—probably at the time of the annual mid-summer “hike” of the Sierra Club.

The lot chosen by Mr. Wright for his studio home was at one time an old orchard. It still contains apple, peach and pear trees that have offered grateful shelter to the transplanted wild things. In time, the fruit trees will be removed, leaving the garden a tangle, wild and natural as that of the forest primeval.

An old barn, a left-over from village days, Mr. Wright has converted into a studio. Bernard Maybeck, creator of the Fine Arts Palace at the Panama-Pacific Exposition held at San Francisco, supervised the change and designed the house that has been developed about the glorified barn. The home, like the wildwood garden, is simple, individual—and another story.

There is no reason why this novel and picturesque idea may not be indefinitely extended. A wildwood garden ought to be practical in any locality. Native trees and shrubs quickly make themselves at home in any spot in

which they grew gallantly before banished by man and civilization. The wild things may be procured, as the Wrights have procured theirs, on excursions and trips into mountains and woods. In this way, the garden has a sentimental value, even a symbolic relation, to the home and its occupants. Many nurseries specialize in native trees and shrubs. The nursery stock is ready to grow, and saves many hours of “babying” that transplanted growth demands.

In cost of planting, the wildwood garden, even when nursery-bought, will not exceed that of any other type of garden. The strong probability is that the expense of obtaining native shrubs and trees will resolve itself into next-to-nothing-at-all—a by-product, as it were, of country pleasure trips and outings.

In point of view of delight that the garden will give—it all depends. But if one loves the wild as poets and artists, woodsmen and frontiersmen do,

even a city lot, made over into a woody tangle, will yield something of the joy and soothing peace of the forest and bring, in generous return, pleasure for the labor bestowed upon it.



ANOTHER “TRAIL” OF STEPPING STONES, DAPPLED AND SPLASHED WITH SUNSHINE, LEADS THROUGH THE LEAFY SHRUBBERY TO THE KITCHEN DOOR



Architects in Birdland

By FRANK R. OTTE

I STOOD on the high bank of Canandaigua Lake just behind the Scout camp watching the setting sun glowing like a field of Flanders' poppies; at arm's length an ancient oak, roots deep-bedded in a projecting ledge, then a sheer drop of thirty feet where the water brushed gently against the shale-like pebbles. I was appraising the landscape, and especially the oak as it stood out massively against the fire brands in the west, with an eye for the silhouette photograph I shortly obtained. Presently a "tweet" on the gnarled limb that in the deceiving light seemed but an arm's length away and I saw a tiny beak and soft feathery head of a downy woodpecker inspecting me from a hole that up to now had escaped my notice. The head disappeared and I slunk down behind some brush to await a more intimate view of the tree dweller. For twenty minutes, I watched the head and beak and then the bird itself as, assured that the intruder had left, it crept out and along the branch until almost within reach. "Little downy," I thought to myself, "I know more about you by far than you know about me. I know the size of the hole where you are hatching a little squad of bug catchers. I know that you are a kindly landlady who next year will peck yourself another home and leave this one to some other mothering tree-dweller who, unable to build for herself will claim squatter's rights here—nor will you ever dispossess her."

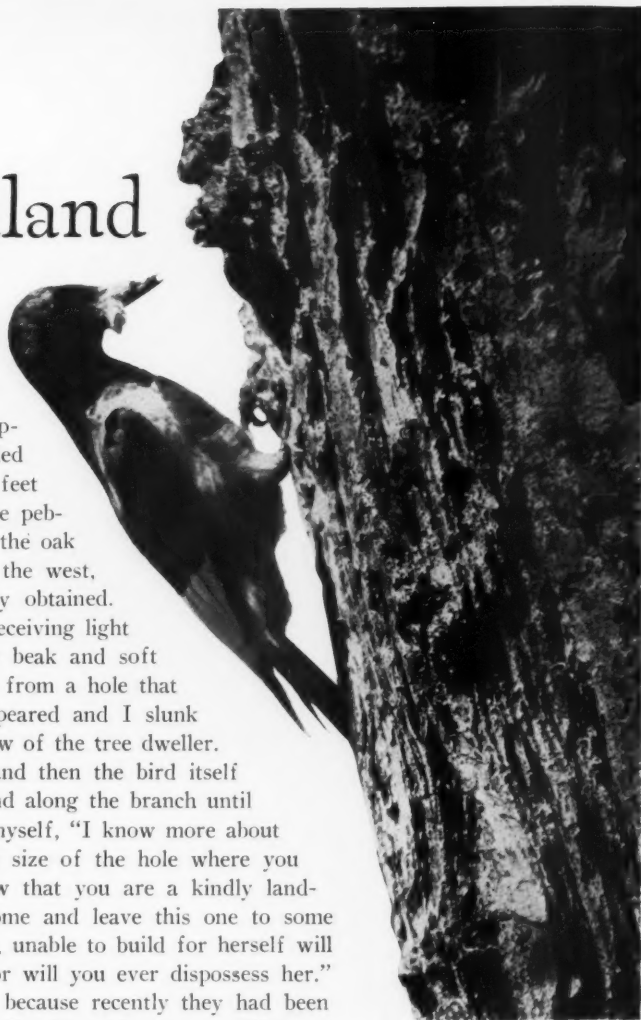
These are the things I knew because recently they had been told me by the Bird Man. The Bird Man lives in Webster, New York, and I had long heard of him; for what Scoutmaster is not interested in birds or in one whose name is known far and wide as a conservator of nature's friends. Then one day I thought, "I must know him better."

So I went to see him where he lived by the side of the road in his cozy house, a friend to all who love as he loves the feathered denizens of the fields and the woods, the nooks and the gardens. As I drove along,

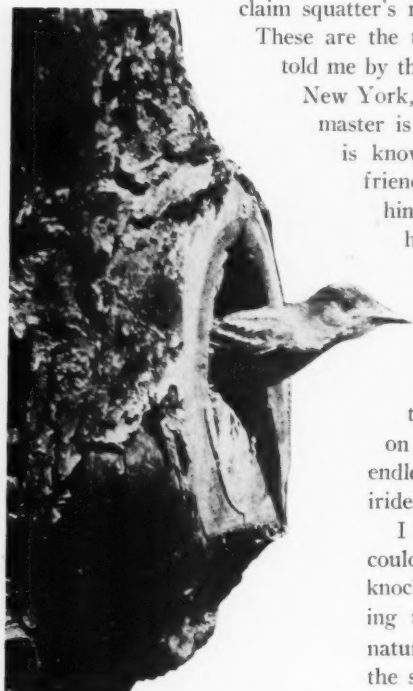
I pieced together the bits of information about him, wondering if he would be as I had heard. My fancy turned to the story of his early life as told me one night around a camp fire. In imagination I saw a chubby boy dreaming behind the plow on one of the farms in this iron deposit country. The evening chores completed I saw him steal away to the virgin growth on the bay, there to lie close to the ravines where the migratory birds in endless profusion scamper and play—gems flashing against the sun in turquoise iridescence.

I knew when I reached his home—none could miss it, for only a Bird Man could so plot his house and garden. A moment later answering the tapping door knocker, Edwin H. Reiber himself stood before me, powerfully built and smiling the welcome of an outdoor man who has learned the laughing ways of nature. We sat in front of his enormous cobblestone fireplace where I heard the story of his growing interest in bird conservation.

Always interested in science and natural phenomena he had definitely chosen chemistry as his field of effort. That was thirty years ago when at Clearwater, New York, he studied it under an old professor. Next door in an old-fashioned house with an old-fashioned garden lived his aunt, whose interests lay chiefly



THE "ARCHITECT" AT WORK, BUSILY BUILDING FOR HIMSELF AND HIS FOLLOWERS



Eastman Kodak Company
THE FLYCATCHER GREETES THE WORLD FROM THE FRONT DOOR OF MR. WOODPECKER'S DESERTED HOME

in her hobbies — flowers and birds. Young Reiber watched with keen interest his aunt's unsuccessful attempts to attract birds to her home-made bird houses and remarked to himself that the birds preferably chose dwellings made by themselves because these foreign apartments lacked the moisture necessary for their well being. But that was as far as he got. Now wedded to chemistry he stuck it out; not yet ready to divorce that interest for those which later proved to be his life work.

His efforts in chemistry led him into the photographic industry where in spite of this time absorbing vocation, he still kept up his avocation devoting all his spare time to studying the tree dwellers and their habits—

"Physical labor, however," he said, reaching this part of his story, "was not denied me. So I built this house. It took me just a year." The attractiveness of the cozy place had impressed me more every moment I sat there. At first I did not comprehend the significance of this almost indifferent assertion.

"Digging the cellar," he continued, "was the hardest part. Often I had to return to bed for a day or two before I was able to continue."

"Do you mean to tell me," I asked, "that you built this big house entirely unaided?"

"Why, yes," he answered apparently amused at my astonishment.



F. R. Otte

"ON A HIGH BANK ON LAKE CANANDAIGUA, THE SETTING SUN GLOWED LIKE A FIELD OF FLANDERS' POPPIES; AND THE ANCIENT OAK, DEEP-ROOTED IN THE PROJECTING EDGE, OFFERED A PERFECT SETTING FOR THE SILHOUETTE PICTURE I SHORTLY OBTAINED"

always with one idea chiefly in mind: to duplicate the devices of nature that housed them. For nineteen years this was his principal pastime.

Then one day he faced the tragedy of overwork and Reiber in the prime of life, just beginning to make a mark in his chosen profession, was told to lay down his tubes and retorts and quit. Death challenged him; there was no alternative but to obey the doctor's directions.

"Without mason, helpers or— or—?"

"Sure, it's a one-man house. Didn't you ever hear of a one-man house? The only labor I hired was a helper to dig the well. I paid him, I think, about six dollars. Of course, it was hard but a lot better than loafing around. I couldn't do that. When the house was done, I built the furniture."

"All of it!" I looked at the attractive tables, desks, chairs, and davenport. He nodded.

Truly this was a long way from birds. But the genius of the man floored me.

"I suppose," I remarked facetiously, pointing to the dozen or two water colors that hung framed along the wall, "that after the house was built and furnished the place still seemed a bit bare so you painted some pictures to trim up a bit?"

"Yes," he replied, "when I have a spare moment I like to dabble in water colors."

That knocked me flat. Chemist, photographer, naturalist, scientist, house builder, mason, painter. Later I learned that he had also made a living as a jeweler and goldsmith, and reading some of his literature I must add—writer.

The man himself and what he has done is worthy of this digression, for it shows his genius and perseverance to help us better understand the why and wherefore of his success in birdlore. So now using my pen as a medium let him tell the rest of this story in his own words.

"There are in the United States about 45 different species of woodpeckers which roughly for size and class may be divided into seven groups; the smallest of these are represented by the well known downy and the largest by the pileated. In other words, the seven birds in the first group are all slightly different, but in size and general characteristics similar to the downy. The second group like the hairy, the third group like the red-head and so on. Each group pecks out a cavity in dead wood and their nesting holes vary in size and characteristics just as the group characteristics vary. The dwellings in the downy class are the same with an entrance about the size of a silver half dollar, those in the pileated group have a front door about the size of a small pail. Whatever the group, the pecked hole opening is just large enough to permit entrance, the interior of appropriate size for a roomy comfortable home for rearing the young.

"Strangely, a woodpecker, with very few exceptions, never occupies the same home twice. He prefers to provide a new cavity every spring and therefore leaves a substantial string of empty dwellings behind him to be occupied by the other cavity nesting birds that do not peck out their own holes. Nature has made a peculiar arrangement in regard to this for along with the woodpecker tribe there are also about 45 other birds in the United States which may be classified in groups of seven—each group from year to year nesting in the vacant home of the woodpecker which corresponds in size. For example the cavity of the downy is later occupied by the wrens, the nuthatches and others of this group; the hole of the red-head later is taken by the flycatchers and the martins, those of the pileated by the owls, the flickers and so on. Literally then our woodpeckers are bird architects, building hundreds of homes for others. Thus, the first step in providing bird homes requires us to study the work of these builders.

"What are the properties of the cavity as pecked out by the woodpecker from decayed wood? What condi-

tions must be paralleled? Moisture, temperature, and destructive vermin largely control bird life of the cavity nesting variety. The woodpecker architect builds a home in dead wood that is a recess from exposure. It is a cave in its coolness, kept moist by the very properties that caused decay. It is a cave connected with the ground by a moisture drawing support of crumbling wood. There is no excess moisture, you understand, just enough to provide an atmosphere that will not dry out the eggs. *And eggs must not be dried out.* If they are the young will die in their effort to shed the shell. We can't expect to disregard the free albumin placed inside the shell and be successful in having birds. This free albumin is a watery substance which does not enter into the young bird during incubation but remains in a liquid state to assure perfect hatching. The ordinary one-wall bird home often built by bird lovers in their ignorance is actually a menace to the young, for in them this free albumin is quickly dried up by the excessive heat. Thus when hatching time arrives the skin of the baby bird adheres to the inner shell membrane and as the shell separates this is torn so that the newborn die or are grotesquely deformed.

"Granting then that this free albumin is invaluable and that the Creator knew his business when he provided it, we must immediately decide that heat generating cans, boxes or kegs, lacking in moisture cannot bring forth the percentage of little ones that might be obtained. In their necessity birds may occupy a tin can, a keg or a box, but like humans we should give them the chance to get away from the heat of the slums.

"These are the things that I learned from birds themselves and thus in my bird house ventures I attempted to copy their houses as exactly as possible—all of which required careful study, and led me to isolated districts throughout North and South America to study the birds at close range in their primitive and wild habitats. Knowing their habits there followed years of investigation to develop and obtain a specially treated, fibrous, porous, flexible wood which would duplicate in moisture-absorbing properties the decayed timbers wherein the tree dwellers make their homes. Red cedar and sassafras solved the problem; the oil in both woods eliminated the possibility of vermin, the bark of the sassafras is a non-conductor of heat and helps to keep the nesting chamber cool. The rest of the problem was fairly simple, merely requiring that the cavity be the proper size for attracting the bird desired; that methods of free circulation be provided and that the homes be durable enough to assure the continued return of our migratory friends.

"All this is arranged for the different birds that make their abode in the deserted woodpecker's home. Supplying a habitat for the architect himself was an entirely different problem. Nature requires that the woodpecker *must* build his own dwelling; you cannot build it for him, but you can provide the material.

In the old days there was a constant natural decay in trees and it was this dead wood that the woodpecker



F. R. Otte

THE HOUSE THAT THE "BIRD MAN" BUILT BY HAND

Here he made intimate study of the birds and learned many of the secrets which have made him eagerly sought as a counselor in bird-lore. The upper insert shows a homemade house, which lacking proper moisture and ventilation, does the fledglings more harm than good—just one of the secrets the Birdman learned! And the lower insert is of a beautifully set nesting supply station in the front yard of the house the Birdman built.



builder looked for from season to season. Dead wood in our gardens, however, is unsightly, so we prune our trees and doing so literally chase away the birds. The thing to do then is to supply artificial dead wood in specially devised tree houses and supplying them, they serve a dual purpose. Finding these houses the woodpecker pecks out a cavity and lives there the first season; the next spring it is occupied by another bird. I worked long on such a house and finally built one, a cellular structure with the inside filled with South American palm, a wood as soft and spongy as that in naturally decayed trees which absorbs moisture from the air.

"Such have been my methods in the observation of birds, the most valuable friend of man, but a friend which unless cared for will soon die out. Eliminate the birds and you automatically eliminate our trees and crops. For example, history tells us that in 1826 many

great trees of Brussels were nearly defoliated by a scourge of moths that swarmed like bees in summer. Happily the titmice and creepers came to the rescue and soon ate up all the eggs. If half of them had hatched the following spring it is probable that not a tree would have remained in this beautiful Belgian city. So we are bound to care for the birds and to protect them not only because of their rare beauty and sweet songs but actually because they are the nature chosen guardians of our crops and property."

It was easy now to understand why Henry Ford and other owners of our wealthiest estates have sent for him as a counselor in birdlore. Unobtrusively and quietly throughout the length and breadth of this land he has worked for our feathered friends. Millions of birds are today singing their songs and policing our gardens because Reiber, the Bird Man, made possible their incubation by studying their homes and improving upon them.

The Association's Great Opportunity

George D. Pratt Pledges \$100,000 to Endowment Fund for The American Forestry Association—Members Must Now Raise \$40,000

THROUGH the leadership and generosity of its President, George D. Pratt, The American Forestry Association is soon to have an Endowment Fund of \$200,000. Mr. Pratt announced last month that he would give \$100,000 toward this fund, if the Association would provide the remaining \$100,000. In view of the fact that the Association has built up from Life and Patron Memberships and special bequests a permanent fund of approximately \$60,000, the amount which the Association must raise in order to meet Mr. Pratt's condition is \$40,000.

The Directors of the Association are confident that the remaining amount will be speedily subscribed by the members of the Association, in that the magnitude of Mr. Pratt's gift makes the condition one which should easily be met. Never in the history of the Association has such a favorable opportunity been offered for the acquirement of an endowment fund, long recognized as essential to the permanence and continuity of the Association's work in the field of popular forest education. During the three years that Mr. Pratt has been President of the Association he has been increasingly impressed by the need of a substantial endowment, and his confidence in the Association, its members and its work have prompted him to subscribe one-half the amount.

"The Association is doing a great work," said Mr. Pratt, "in carrying the need of forest conservation to the American people, and in awakening their active interest and participation in the solution of its many important questions. The founders of the Association more than fifty years ago recognized that only through popular education could our people be brought to an appreciation of forests that would assure their perpetuation. The foresight of those founders is abundantly proven by the present day evidence of the increasing results of popular education. With a clearer understanding of the extent to which forests are essential to outdoor recreation no less than industrial welfare, individuals and organizations in every state have enlisted in the cause in encouraging numbers.

"It is an honor and a responsibility to be a member of the Association which first brought together the constructive forest sentiment of the United States and made it an influence that has spread and taken root throughout the country. We may well take pride in our accomplishments, the high esteem in which the Association is held nationally, and the definite influence which it exerts.

"But as members worthy of its cause, let us look to its betterment to the end that its influence and its power of organized effort, built up through the years, may be still more productive of forest progress. Throughout its history, the Association in the absence of an endowment fund, has been handicapped by uncertain and inadequate income. It has to budget its way from year to year on faith in the continuing support of its members, unable to plan ahead its work with that degree of permanence that is essential to the best effort in popular education. Frequently opportunities for greater service must be neglected because future income cannot be foreseen. Especially urgent projects involving special cost must often be undertaken with the expectation of a deficit to be made up later as best it may. Under these trying and diverting conditions, it is not to be expected that the Association can carry forward at its highest usefulness.

"The Association is today in a sounder financial condition than at any time in its history. It can meet all liabilities and still show a surplus in its permanent fund of over \$50,000. Its magazine is on a self-supporting basis and is carrying the meaning of forestry to people, schools, libraries, and organizations in every state of the Union. The Association's present activities in other fields of education and legislation are, however, under-written largely by special donations, which cannot be definitely counted upon from year to year. A permanent and continuing income of approximately \$10,000 will tend to correct the hazards and uncertainties of this situation. An endowment of \$200,000, conservatively invested, will assure the Association this income and will form a permanent foundation upon which to build for future and larger work."

Every member of the Association has been sent a personal letter, notifying him of Mr. Pratt's generous offer and asking that subscriptions to the balance of \$40,000 remaining to be raised, be sent in at once. If your letter has not reached you, it is delayed or lost in the mails, so please do not await its receipt in order to send in your pledge of the amount you feel able to subscribe. And do not hesitate to give a small amount because you cannot afford more. Subscriptions made now will not be payable until the \$40,000 is fully subscribed. All communications should be addressed to The American Forestry Association, Washington, D. C.



A Town That Owns Its Trees

By HENRY H. TRYON

IT shall be unlawful for any person...to in anywise injure or destroy any living tree or sapling within the corporate limits of the town except through...permission from the Town Council.

Sounds rather like an excerpt from some early town ordinance, doesn't it? Exactly so. Summerville, South Carolina, was settled late in the 18th century. For over a quarter of a century the village was but a good score or so of unpretentious residences utilized almost entirely as summer camps by the rice planters and other folk from Charleston and points on the nearby coast. In winter the place was deserted.

About 1835 a sprinkling of all-year-round dwellers came in. And in the 40's and 50's, because of the yellow fever epidemic in Charleston, and Summerville's established reputation as a dry, healthful spot, the number was increased and the "Village of Summerville" was incorporated. Protection of the town trees through proper municipal regulation was the chief object of this incorporation for a firm belief existed in a definite relation between civic health, plenty of pine trees and a minimum of cleared space for vegetable gardens.

And out of this theory of health arose the ordinance quoted in the opening sentence. Some years ago, there also existed an ordinance, since repealed, preventing the planting of more than a certain acreage to vegetable gardens, on the ground that too extensive gardening was detrimental to the general health of the town. The legality of this particular instrument was tested and upheld by the Supreme Court.

So today, Summerville probably stands as the only incorporated community in America where the trees, regardless of ownership, are subject to the general police regulations. For although the town does not hold title to trees on private land they are subject to the general

police powers of the Town Council. These ordinances have always been scrupulously observed by the citizens—in fact, today, no tree is cut in the town, even in the streets, unless it is necessary for the preservation of other trees or because of a dangerous condition in the trees to be felled.

It is interesting to note that whenever a dead pine is found within the town limits, the owner is duly notified that the tree must be removed within five days' time. Failure to comply with this notice results in the town workmen doing the job, cutting the tree into firewood and selling it. After deducting the cost of the job, any remaining balance is turned over to the owner of the tree.

In 1830, the old South Carolina Canal & Railroad Company purchased some 1,800 acres which was shortly laid out into the "Village of New Summerville." The history of this development reveals several decidedly unique features. For example the town streets while duly dedicated by the railroad company to public use have never been formally acquired by the town. And another point,—remember this happened nearly 100 years ago—is perhaps best set forth by the following excerpt from the paragraph found in the majority of deeds to purchasers in this "New Summerville" area:

"Every lot shall consist of one acre, and on every lot shall be preserved not less than fifteen pine trees, measuring not less than ten inches at the height of three feet above the natural surface of the ground. And if any lot owner shall suffer the trees on his lot to be cut or destroyed, so that there shall not be found as many as fifteen pines on the dimensions aforesaid on his lot, his title to said lot shall be forfeited, and the fee simple and inheritance of the said lot, shall vest in the South Carolina Canal & Railroad Company. No tenant or owner shall erect more than one dwelling house on one

Industrial Forestry Moves Forward

By
WILLIAM L. HALL

REFORESTATION is more widely started in portions of the South than perhaps is generally realized. This is especially true in the western portion of the shortleaf pine belt, which extends through portions of Louisiana, Texas, Arkansas and Oklahoma. On the forestry movement in these states the public does not appear to be any too well informed. Arkansas, for example, is often pointed out as a state which has done nothing toward reforestation. The statement is probably based on the assumption,—no forestry legislation, no forestry. In this case, that assumption is incorrect. True, Arkansas has no forestry legislation, but she has made a beginning in reforestation.

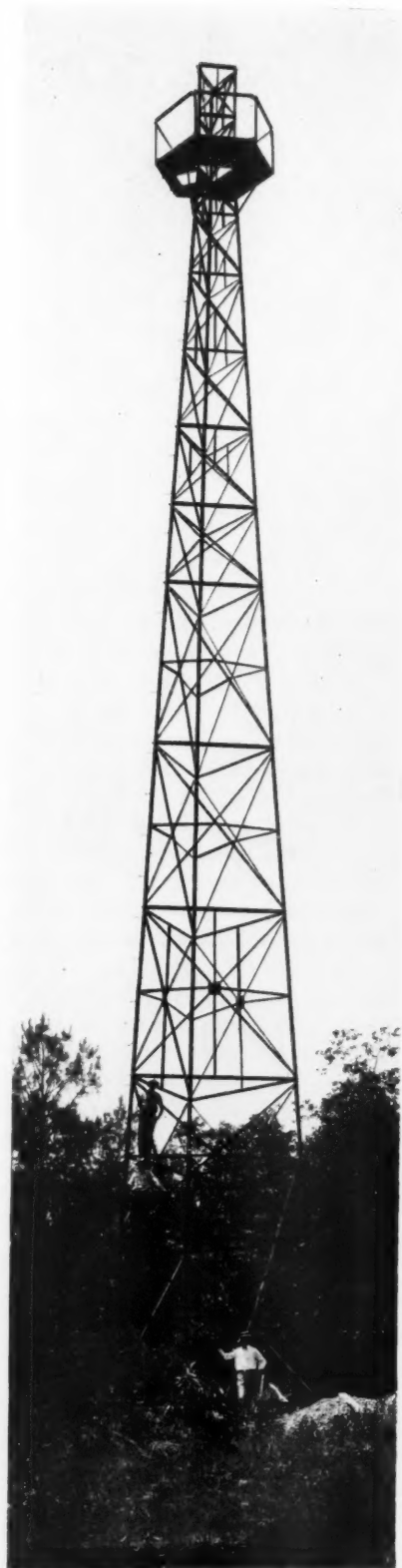
Pine lands in Arkansas may be placed in the following classification. It is the writer's own set-up and not based very largely either on government or state statistics. It is, however, based on a considerable volume of detailed information. In this statement, the aim is to segregate the whole pine area of the state by classes, both as to size of holdings and present status of management.

Pine Lands of Arkansas

- | | |
|---|-----------------|
| 1. Acreage of pine lands as given by Government..... | 9,500,000 Acres |
| 2. Large private and Government holdings managed under systematic reforestation plans..... | 1,775,000 " |
| 3. Small tracts incidentally protected with above..... | 435,000 " |
| 4. Tracts, large and small, well stocked with young timber and partially protected with view of future growth | 1,500,000 " |
| 5. Large tracts fairly restocked with pine, mostly small growth, but unprotected | 1,150,000 " |
| 6. Small tracts, restocked to pine, unprotected..... | 4,640,000 " |

Certain comments may well be made on the items of this statement. Concerning the total acreage it should be kept in mind that this area is all stocked with pine. It does not include barren lands. The only barren lands in this portion of Arkansas are abandoned farms which are slowly reverting to forest and these are not included. Forest acreage is, in fact, increasing by this process of farm land reversion.

Of the second item the Government owns about 400,000 acres in



100-FOOT TOWERS MAKE POSSIBLE
THE PROTECTION OF THESE FOREST
LANDS FROM FIRE

the Ouachita National Forest leaving some 1,375,000 acres in large private holdings.

The third item is merely a personal estimate. To the writer's knowledge the acreage is large. The figure given is probably conservative.

The fourth item is also an assumed figure but considerable knowledge of the pine region shows this class of timber land to be quite large.

The fifth item is made up mainly of holdings personally known to the writer. These tracts generally include more than 10,000 acres each.

The sixth item includes tracts of less than 10,000 acres. As will be noted it appears to form nearly one-half the total. Much of it is connected with farms.

Now the purpose of this article is to deal only with

can, perhaps, give the clearest idea as to what is going on by taking one company and examining in some detail its plans and accomplishments.

For this purpose let us select the company having the largest timberland holdings in the state and one of the most extensive lumber operations. This is the Dierks Lumber and Coal Company of Kansas City. Its lands in Arkansas make up about 560,000 acres of the above group. It also has in neighboring portions of southeastern Oklahoma an equal or somewhat larger acreage. In fact, its present manufacturing activities center more in Oklahoma than in Arkansas.

With 1,150,000 acres or thereabouts of timbered or second growth land, this is one of the large holdings of the South. The policy of the company, therefore, as to



A WELL-STOCKED STAND OF THRIFTY TREES, CHIEFLY SHORT LEAF PINE AND WHITE GUM

the second item, namely those lands on which definite measures of forestry are in operation. We will also eliminate the 400,000 acres of Government lands. This leaves the 1,375,000 acres owned by lumber companies, and as a matter of fact this area is owned by eight companies with whose lands and plans the writer is more or less familiar.

How complete and effective are the plans of these companies? Just what are they doing? It would be too tedious to discuss in detail the work of each. Most of them are known to be doing substantial work with a view to regrowing a stand of merchantable timber on their holdings. Their work is not paper work, it is work on the ground as anyone will see who comes to Southern Arkansas, and investigates for himself. We

reforestation, if such policy be well founded, will have some importance for the country as a whole. It will also be considered as a worthy example in the lumber industry of a faithful effort in the direction of developing a reforestation policy of large scope.

How has a single company come into ownership of so much land? Through large purchases of railroad or other grants? Not mainly. Some holdings of considerable size have been acquired from other owners. Mostly this holding has been built up through a steady policy carried out through twenty-six years of acquisition of small timbered tracts or abandoned farms. These have been the raw materials which have been welded together to make this property. The process of consolidation even yet is incomplete, although



AFTER A THINNING IN THE STAND OF YOUNG POLE-SIZED PINE

several large units are now quite well consolidated.

Lumbermen and foresters will know that a property thus built up and on which lumber operations have been carried on through a quarter century will present greatly varying conditions. The entire holding might be classified somewhat as follows:

1. Virgin Timber, 575,000 acres
2. Closely cut lands, restocking to young timber, 125,000 acres.
3. Lightly cut lands fully covered with sec-

ond growth, some well advanced, 450,000 acres. The last class includes much land cut over by others and acquired by Dierks interests since they were cut. It also includes a considerable quantity of old field growth.

Situated as these lands are in the western end of the shortleaf pine belt, some think that the growth of timber is less rapid than elsewhere. My own observation is that there may be found wide variation in growth even within these holdings, due to local soil variation. It may possibly be true that growth here is not quite so rapid on the average as in certain other favored localities, but after rather extensive observations, I am inclined to think this difference is not great, if indeed it exists at all. It should be remembered too that this is the region of pure shortleaf pine in the Ozark foothills and its quality is not surpassed by any of the mixed stands of pine found in the lower country. Growth of from 200 to 300 board feet per acre per year in well stocked stands of merchantable size may reasonably be expected.

So much for the timber. What of facilities? The Dierks present going plants consist of three large pine mills and one hardwood mill. Three of the plants are in Oklahoma, one in Arkansas. All of them contain the highest type of equipment and all of them are engaged in a constant effort for the highest refinement of manufactured product. The hardwood mill takes hardwood logs from all the logging operations, for there is a considerable mixture of hardwoods in the pine forest of this region. One additional mill is now under construction and another is planned. All present operations are connected by a common carrier railroad, some seventy-seven miles in length. Each logging operation has its own railroad.

All operations are also connected by a power sys-



BEHIND THIS MILL IS A TRACT OF 300,000 ACRES OF TIMBER. ONLY THE SKILL AND VISION OF THE FORESTER CAN KEEP THESE WHEELS TURNING IN PERPETUITY

tem. Mill waste is completely utilized in power manufacture and the product is supplied to fifteen nearby towns. This is an important subsidiary industry tending strongly toward the industrial development of the region.

An extensive railroad tie business is also conducted by the company. Until now this has been mainly in the nature of hewed tie production. At present the company is working more toward small tie mills to utilize the hardwoods which have not the quality for

saw logs. This is an important factor in salvaging timber otherwise valueless and in freeing the land more largely for pine growth. Pine grows more rapidly than hardwood and in general, is more valuable. So the purpose is to promote the growth of pine rather than hardwoods but not necessarily to turn the land into a pure pine forest as it is believed the hardwoods serve in maintaining the thrift of the stand. Then, too, of course, there are certain portions of the land suited more to hardwoods than to pine.

Now, with this setting, what actually is being done in the way of reforestation? Here it is. It divides into three parts, or three lines of activity.

First, comes the protection of the entire property from fire. This includes a number of steps. The very first endeavor was the organization and training of three large logging forces, some 600 or 700 men, in fire



A CUT-OVER FOREST AFTER LOGGING. TREES UP TO 14 INCHES IN DIAMETER ARE LEFT TO FURNISH THE NEXT CROP

prevention and fire fighting. Certainly this organization may now be called a trained force and it has so clamped down the lid that practically no fires are started. Its training and organization have been in the direction of absolute fire prevention on its own part and in quick suppression of fires that may start from any source on or within reach of the logging.

As a second step a force of fire wardens has been organized now numbering 62 men, each with his own district of ten to twenty thousand acres of company land. They are year-long men each living on his own farm in his own district. Another step has been the construction of lookout towers. There are five such towers, strategically located for commanding view of the holdings. Four of these are of steel construction, two of them 100 feet in height. All are equipped with

maps, fire finders and other necessary apparatus. The towers have cottages beside them where the tower-men live. In addition, four Government towers on the Ouachita National Forest form units in this protective system.

Telephone lines are being built, connecting towers, wardens and lumber operations with the central offices. This system will involve some 300 miles of line.

Finally, there is an active supervisory force of two men who are in constant touch by phone with all parts of the system and constantly informed as to conditions throughout the district.



THESE SHORT LEAF PINE SEEDLINGS ARE THE RESULT OF CONSERVATIVE LOGGING AND FIRE PROTECTION. NATURE HAS COMPLETED THE TASK

As may be surmised, this protection system is not aimed at the favorable year or even the average year. Something less intensive would do at such times. This system is aimed at the critical year,—the year of long drought, with ground and forest dry as tinder and the air itself well-nigh exhausted of moisture. The theory here is that it is futile to protect a forest in favorable years only to have it burn in the crisis. Furthermore, after a few years of protection the fire hazard is greatly augmented by reason of increased growth of grass, brush and young trees and by an accumulation of leaves and litter. The protection system has taken this into account.

A second forward step concerns the removal of the present timber crop. The old plan of haphazard cutting without regard to the condition in which the land was left has been completely discarded. No longer is the attempt made to harvest all merchantable trees. The aim is to get a reasonable cut and at the same time leave the remaining stand in the best possible condition for growth. Good growing stock must be left on the land, for the land must not be idle. Roughly, a diameter limit of 14" breast high is in effect, but this constantly varies with the condition of the area. Of course, conditions are not ideal, but a vast growth of young timber is being left on these lands. In the logging also, pains are taken to avoid breakage or damage of timber and there is constant effort toward the most complete utilization of the tree.

Recently, a section of land thus logged was carefully examined. It was found that over the entire section there is from 60 to 70 per cent of complete stocking of trees from two years of age to 14 inches in diameter. Furthermore, there was last year a phenomenal germination of pine and with the addition of these young seedlings this section, as well as all recently cut lands, are fully stocked with young trees.

In brush disposal, a number of steps have been taken. At first brush was piled with a view to burning. This method was abandoned because burning could not be done without too much damage. On the other hand the piles could not be left unburned without interfering considerably with the restocking of the land. Next, for more than a year, the plan was followed of cutting the brush away from all trees of good size. The theory was that in case of fire, these trees would thus be protected. This plan failed to protect the young seedlings and these have appeared in such great numbers that the protection system must fully take them into account. Besides, experience indicates very strongly that the company can protect its land with small losses even where no brush work is done. It has accordingly restricted brush work to

areas of especial importance from a fire standpoint.

A third general line of activity is the research necessary for the company to learn the growth possibilities of its holdings and to plan its future operations. It might be supposed that with all the government facilities for research it would be unnecessary for private interests to carry on any research of their own. But the experience of this company has been that a certain amount of fundamental research is necessary. It is to go along two main lines. First, to determine exact conditions of second growth lands and to determine the treatment necessary to bring these lands to highest productiveness. The work will result in a dependable classification of the lands, both as to site and condition. Second, growth studies will be made to determine what growth can be counted on for different sites. Such research will have important bearing on future cutting operations.

What is being done by this company is being done to some extent by the seven other companies referred to. Their conditions and objectives differ considerably but they have the common purpose of keeping their timberlands productive in a high degree. The influence of these companies will unquestionably be powerful in leading the remaining large owners of pine lands in Arkansas into constructive plans for handling their properties. It is actually working that way now. Much of the present advance has come about during the past two years. There are additions to the group every few months. Several companies which are not now following any system, have plans of some sort under consideration, and some of them are even now gradually changing from old methods to the methods here outlined. But their changes have not been substantial enough to align them with the forward-looking reforestation group. The movement is to be considered as well under way and constantly gaining momentum.

There is just one reason why companies are changing from old to new methods. It pays. Whether they can operate permanently or not it makes their cutover lands a real investment. No lumber operator can afford to disregard that kind of an opportunity.

Nor does Arkansas stand alone in this movement. Louisiana and Texas timber operators in considerable numbers are committing themselves to a program of fire protection in cooperation with their respective state forestry organizations. This makes possible greater returns through actual reforestation measures. Given fire protection, land owners will hardly be satisfied until they begin to reap the full benefits of forestry. That means high productiveness of forest lands—the great objective both for the timberland owner and for the Nation.



The Resurrection Plant

By LELA COLE KITSON

THIS queer desert growth might be described as the plant that "plays dead," for so highly developed is its power to absorb moisture that even after having been uprooted and carried about by some collector for months or perhaps years, it will respond at once to the touch of that magic fluid, water, and spread out its tightly-curved brown leaves exposing a heart as green and fresh as when it left its native heath.

The State of Chihuahua, Mexico, is its home, but various species of the same family, *Selaginella*, order, *Lycopodiales*, are found in New Mexico, Arizona and Texas, and even as far north as the Little Rockies region of Montana.

Peculiar to a region subject to long drouths, sometimes of two or three years' duration, the Resurrection Plant is a striking example of the adaptability of plant life to environment.

The plant appears to grow out of solid rock, its slender roots, like bunches of coarse hair, taking hold in the minute cracks and crevices of the surface. These, occurring as they often do in parallel lines or rough geometrical figures, give the plants the appearance of having been laid out in neat order like so many wiry brown brussels sprouts.

During the long dry season they curl up in tight balls, their grey-brown outer leaves so withered and lifeless that they seem to be a part of the rock out of which they spring; but with the first light shower what a change! Thirstily the roots suck up the moisture which has seeped into the crevices, and as though at the touch

of a wand the tight fern-like leaves uncurl, carpeting the barren surface with a dark green mantle.

The Resurrection Plant is related to the famous Rose of Jericho, found on the shores of the Dead Sea. When the seed pods of the Rose of Jericho are ripe the leaves fall off, the branches interlace enclosing the pods, become dry and rigid, and in this ball-like form are blown about by the desert winds until the plant is deposited in a damp place. The touch of moisture brings it back to life, and it rapidly uncoils, depositing the seed in the soil suitable for germination. The Rose of Jericho is collected and

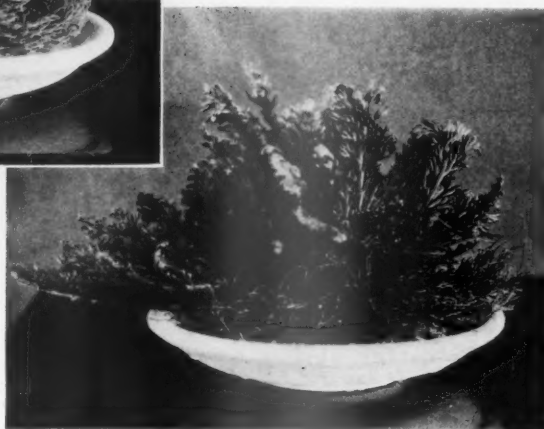
sold as a curiosity, but as yet its Southwestern cousin is too little known, largely because it is not accessible to the average tourist, or often found among curio collections.

Related also to the Resurrection Plant is the so-called "resurrection fern" which occurs

on trees in the Southern States and the West Indies; the native species are inconspicuous and little known, but some of the tropical species attain enormous size as climbing-plants. All the members of this family are curious and interesting, but none more so than the Mexican representative, especially at this season of the year when children who are fortunate enough to own a Resurrection Plant delight in placing it in a bowl of water on Easter morning, and watching it uncurl its dry, dead leaves—a beautiful symbol of the everlasting triumph of life over death.



THE LITTLE PLANT
"PLAYS DEAD"



BUT—IMMERSE IT IN WATER FOR A SHORT TIME AND THE TRANSFORMATION TAKES PLACE. THE TIGHTLY CURLED BROWN LEAVES UNFOLD TO EXPOSE THE GREEN HEART OF THE PLANT

American Forest Week comes this year April 24 to 31. Do not fail to read President Coolidge's Proclamation on page 230 and the editorial on American Forest Week on page 231. They will inspire you to do bigger things this year. Suggestions for constructive activities during the week will be found on pages 232 to 235, inclusive. A list of the material which the Association has available for distribution during American Forest Week will be found on page 255. Make your selections now to assure early delivery.

ELAIA

An Easter Story of the Trees

By LAURENCE EDWARD MANNING

Olive Tree, O Olive Tree!
Why are you gnarled and old?
What torture twists your branches so---
What means that wound your trunk doth show---
What mystery untold?

Olive Tree, O Olive Tree!
Where is your riven limb?
'Twas taken from me long ago:
A Man-God bore Earth's sin and woe
And cross of wood bore him!

—*Rhymes of a Stagger-bush.*

ELAIA the Olive tree was twisted and broken with years. His bark had been cracked before Rome fell and the cracks had blackened during the dark ages. And still his sparse foliage sprawled athwart the sky and the spring sun of Palestine beat on the rock and dust of the crag he guarded.

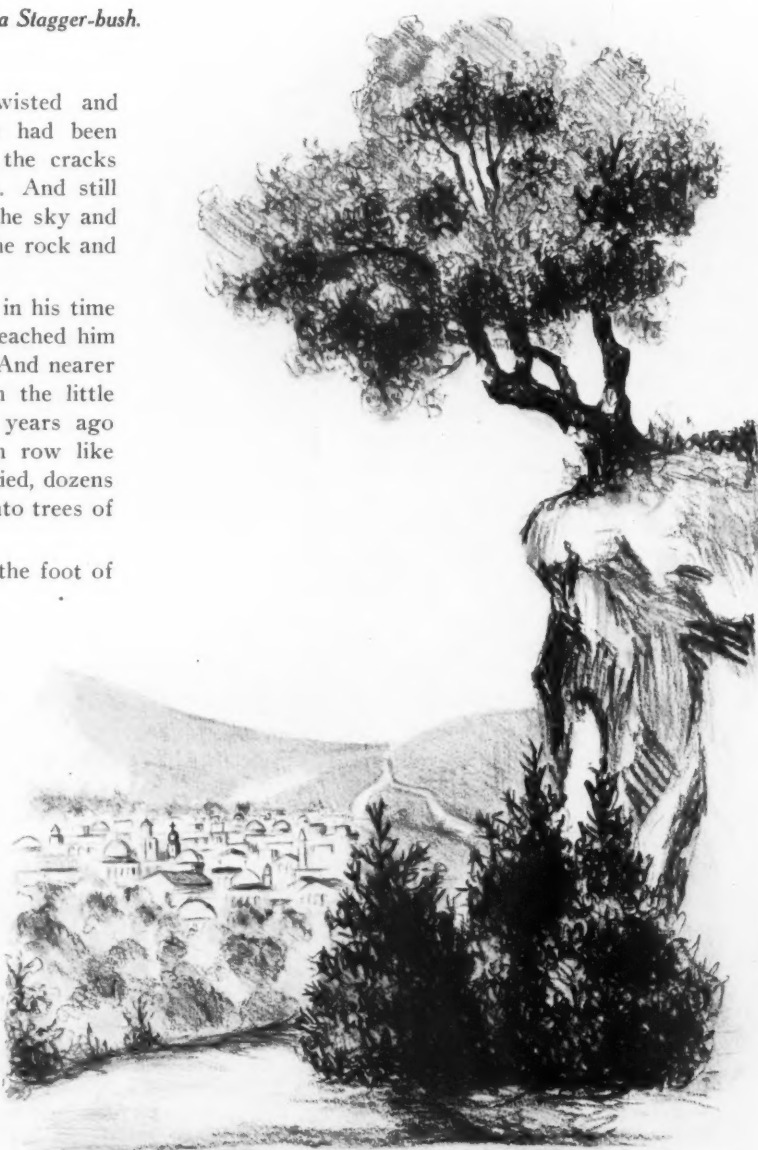
Strange things had come and gone in his time and rumors of things still stranger reached him from the ancient city over the hills. And nearer at home, now, came changes, for in the little mountain valley at his feet a few years ago some plants had sprung up, row on row like soldiers, and although hundreds had died, dozens had lived and were rapidly growing into trees of a species unknown to him.

Three of them were quite close to the foot of the rock beneath him, although separated from their companions. His curiosity was at times aroused by these strange plants, but for the most part they were forgotten in a troubled contemplation of life, and its signs and omens. Elaia was a mystic. These miraculous upspringings of trees in rows were, no doubt, merely further manifestations of the all-seeing Destiny which ruled the universe.

But the curiosity of the three strangers concerning Elaia and this Oriental world in general was unbounded. Strange as it may seem, they were Pine trees. Nor did they appear in Palestine by miracle, though Elaia would have thought it one, even had he known the facts. And these facts were,

simply that an American relief director with a liking for his native trees, a passion for experiment and money enough to indulge it, had planted them. The Pines had been shipped, carefully packed, from a nursery in New England and had, after some difficulty and losses in getting started, done fairly well.

"The way I look at it, Slim," one was saying, "It may be our home and all that, but I can't seem to feel natural here."



"Same with me, Thicketwig," agreed Slim, "Sometimes I wonder how we ever got here. Look at our branches and leaves: Nothing like them anywhere around, is there? Old Judas Tree's been here a long while, I reckon, but he never saw our kind before, did he?"

Thicketwig nodded and the three pondered in silence. The strangest thing of all was the Olive tree on the rocks above them. Queer chap, Elaia. He never seemed to want company; almost resented being spoken to.

The spring sun warmed the hillside. Far below lay the buildings of Man and a group of trees near it—a Plane, two Ailanthus and some Willows. Above were the rocks and the two patriarchs—Judas tree and Elaia. A sparse scattering of undergrowth here and there partially relieved the barrenness of the hill.

"That's another curious thing," said Slim. "Why don't old Judas and Elaia ever speak to the bunch below us?" The other two had their views on the subject and the discussion grew loud enough for Judas tree to overhear.

"I see you are in ignorance," he interrupted them, "and therefore I will tell thee that such trees as follow man are beneath notice. Plane, Willow and Ailanthus—all are renegades; and we of the true Forest and Faith scorn them. See ye to it, if ye be true trees as ye say!"

"But," interposed Lowbranch, gazing about at the barren hillside, "Two trees don't make a forest!"

"No matter. It *was* forest and the tradition is passed down for all to follow. We at least do not depend on Man . . . canst thou say as much?"

Slim, ignoring the question, interposed, "What is there about the Olive tree, Old Elaia? He never talks and there doesn't seem to be any tree quite like him. He's nothing like those little Olive trees down there in the orchard, you know. . . ."

"Orchard!" Judas Tree trembled with scorn, "Race of weaklings, parasites! Dost expect *them* to resemble a wild Olive of the hills?"

"Now there it is again," complained Slim. "What is there about Elaia? I'm no fool; I can feel it—but what is it?"

It seemed likely they might never know. But then, curiosity is not generally a consuming passion with trees. They live slowly as time is reckoned among men, and enjoy life rather as it happens than as it might have happened. The three pines contentedly enough breathed in their days of sun and air and sighed

cheerfully the soft nights through, as all proper trees should.

It had chanced that in their transportation from America, the box containing these seedlings was transferred to another vessel at Naples and had rested on the end of a pier a few hours. The box was of open structure and Thicketwig had been afforded an extraordinary view of the Mediterranean Sea. This being inexplicable to his imagination, was retold by him later to his companions as a dream, and had on several occasions served as the subject of discussion. One of these occasions arose soon after this conversation.

"It's the meaning of things I want to know," Slim was saying for the fifth time that day. "Why is old Elaia so aloof and so indifferent? Take that tremendous scar on his trunk, that's been a branch torn off years

ago, I reckon—looks as though it was bigger than the trunk was then, too . . . well, it isn't only old Elaia. Take Life in general and what does it boil down to? Thicketwig's dream, for instance; great open meadow, he says, all flashing sunlight and moving about till you can't rest! Now even if it is a dream, it's just as sensible as . . ."

"Were any trees on this meadow?"

There was a pause of astonishment. The voice came from *above*. . . . It was the Olive tree! The youngsters were hard put to it to

conceal their surprise as Thicketwig hastened to reply:

"No sir, not a tuft of grass on it—but stumps away off, each with one queer white leaf as big as you are (he meant sails) and movin'—oh I daresay it's a crazy idea but . . ."

"That," announced the Olive tree in a pleased voice, "Must verily be the Mediterranean Sea! I have heard speech of it before . . . Mmm. . . . What was the appearance of its mouth, dost remember?"

"Mouth? What is mouth?"

"Why, an opening—a—an orifice."

Thicketwig thought. "This was a meadow, a moving meadow with large white leaves on it," he replied, "Didn't have a mouth!"

"O blind one!" said Elaia severely, "Thou shouldst watch more closely. This sea hath its chief fame for its narrow mouth."

"You've seen it?" asked Slim respectfully.

"It has not befallen my lot," replied Elaia with unshaken firmness, "But I have sure knowledge of this thing. . . . Shouldst thou have the dream again, look for it. . . . dreams are portents. . . ."

MIRACLE

A miracle has shaken all the land,
Each reed and stem becomes an Aaron's rod,
A green light leaps the hills—the tall trees stand,
And lift their glad eyes to the face of God.
O heart—what is this strange, amazing thing?
What is this stirring of the old, old dead?
Forget your grief, look up and laugh and sing,
"I am the Resurrection," Jesus said.

"I am the resurrection and the life,"
"If a man die—then shall he live again?"
Lo, all the earth with loveliness is rife,
Hope's torch lights up the winding ways of men.
The dawn is on the hills—the night has fled—
"Let not your hearts be troubled," Jesus said.

—Grace Noll Crowell, in *Good Housekeeping*.

Now I myself once had dreams, but . . . I seem to forget . . . ah-h-h!" With a prolonged shudder the Olive tree ceased talking and looked even more twisted and wrinkled. Once he muttered, "My limb—I remember—I remember!" He spoke no more, in spite of the attempts of the three friends to question him.

Slim thought it a pretty queer performance, take it by and large; but Lowbranch pointed out somewhat irascibly that "It's about what one might expect—what with all the other queer things hereabout." This, spoken in a voice louder than necessary aroused Judas Tree from his reveries.

"Thou art ribald and graceless youths," he said. "Scorn not the land that feeds thee nor the waters thereof that give thee drink. That thou art strangers in our midst is plain. Now what is the cause of thy talk?"

"It's the Olive, sir," said Slim.

Judas Tree turned to observe Elaia. "So old friend! Verily then, has spring come."

"But what does it mean," asked Slim petulantly, "That's what I want to know!"

"If thou hast reverence for his great age and ask him when the mood is upon him, he will tell thee."

"And until then, thou rotten fig, scorn not the land that feeds thee!" put in an oriental currant that grew in the space between them and the Olive. "Thou canker—thou open sore!"

Slim's retort, as well as the ensuing conversation, though interesting, was hardly printable. So silence brooded over the hillside once more.

For three days Elaia was bowed in his strange grief and his ancient boughs bent as in pain. For three days Slim and his companions discussed and wondered concerning Elaia, dreams and the general strangeness of the world. Then one morning the Olive again spoke to them as though nothing had happened.

"The dream," he said, "Hast thou dreamt it again?"

Thicktwig reluctantly shook his branches.

"I have remembered my dream," said Elaia, "Would to Earth I could forget it for only one spring in all my thousands!"

Slim failed to hide a polite doubt.

"I marvel not, youth, at thy wonder. My age is great above all my kind. Thousands . . . more than two thousand springs can I call to mind. Ah, the old days! Green grass at my feet, where all is now desolate dust. And the very hills were joyful! There is a spirit of great sadness on the land and a curse on all living things. . . ."

"But the dream, sir," interrupted Slim.

"Patience, patience! I am coming to it. This was when I was young, these many springs past. I had

two trunks—a great second limb, larger than the one that now bears my branches. This other limb was torn from me in a day. It may be that Earth punished me thus, or that Man took it—I know not. It happened not without pain. . . . None of thee has suffered the like? But I forget thy youth. As I have said, there was pain and my sap gushed out and onto the ground. But the pain went and I recovered and at times forgot I ever had another trunk. . . . Ah, the old days! Not a wrinkle nor blemish had I. *Aie! Aie!*"

"So passed a winter and a spring and yet another winter. Then came my Dream. It was the next spring—and at mid-day, mark you, not in the winter sleep!" Elaia looked about for doubters, but Thicktwig was nodding his head in understanding—his dream had been in spring also. Elaia continued, "I felt of a sudden a sharp pain. But not a real pain, for it was *in my lost limb!* Then another stab of agony, and another and another until there were four, all burning in my dead limb as though thorns were driven into the very wood of me. And I was in great pain, but no sap welled to the wound to ease it, for my limb was dead. I suffered without relief and the sun beat hot on me and I thirsted. And it seemed there were other creatures with me in suffering. I heard voices murmuring as in pain and then one Voice, sad and gentle. '*This day,*' it said, '*Thou shalt be with me in Paradise.*'"

"Then the murmuring voices were stilled, but my pain grew ever greater and there seemed to be a weight hanging on my limb. And the weight grew ever heavier. Then the Voice seemed to cry out, '*Father, unto thy keeping I commend my spirit!*' And in an instant it grew dark and desolate and there was a loud noise in the heavens and the weight on my limb grew as heavy as the whole world and overwhelmed me. And the fibres of me groaned in agony and my bark cracked and broke open and reason left me."

Elaia fell into a troubled reverie from which even Slim, for some reason, did not care to disturb him. Presently he continued half to himself, as though he had forgotten his audience: "It was just such a day as this when I awoke. . . . I remembered nothing. Not until next spring did I recollect my dream. And my memory is poor, I doubt not, but it seemeth strange that *only* at this same time in each spring I can call it back to mind. . . . Each spring—almost two thousand seasons. . . . Ah, the old days! The land has been accursed since. The trees are gone and the hills that were green with Forests are bare and brown and I that was without a blemish—I. . . . I am very weary." Elaia said no more and the pine trees were silent without knowing why.



The Army of Silent Tree-Killers

III. Controlling Destructive Forest Insects

By W. J. CHAMBERLIN, *Forest Entomologist*

THE wholesale destruction of timber by insects is assuming a more important place in forestry each year, for the rapid increase in stumpage value has brought the timber owner to a realization that measures must be taken to combat the ravages of the insects in the forests.

While much remains to be done in developing new and better means of fighting epidemic infestations, present methods, if properly applied, offer at least a means of preventing excessive losses.

Each epidemic infestation of forests by insects requires special study, for although general principles of control will apply, where various species work in much the same manner there are many local factors which must be considered, such as the species of insects responsible for the primary damage, the species of trees attacked, altitude, latitude, topography, value of the stand, direction of spread of the infestation, and accessibility.

Control work is not always practical even when

large quantities of timber are being killed. It may be that the value of the timber will not warrant the expenditure of the large sum necessary for control. This is especially true where the infestation lies in a remote region, where the probability of utilization lies in the distant future, or the tract itself may be quite inaccessible, a factor which would both reduce the value of the timber and also render the cost of control measures excessive.

In short, control work is warranted, like any other business proposition, when the return in timber saved clearly exceeds the outlay.

The excessive destruction of mature pine in the Western states by bark beetles has brought forth a demand for some method whereby the losses caused by these insects might be decreased.

At the present time epidemic infestations can be controlled, as evidenced by successful operations in both this country and Canada. But in order that an operation may be successful, it is necessary that the



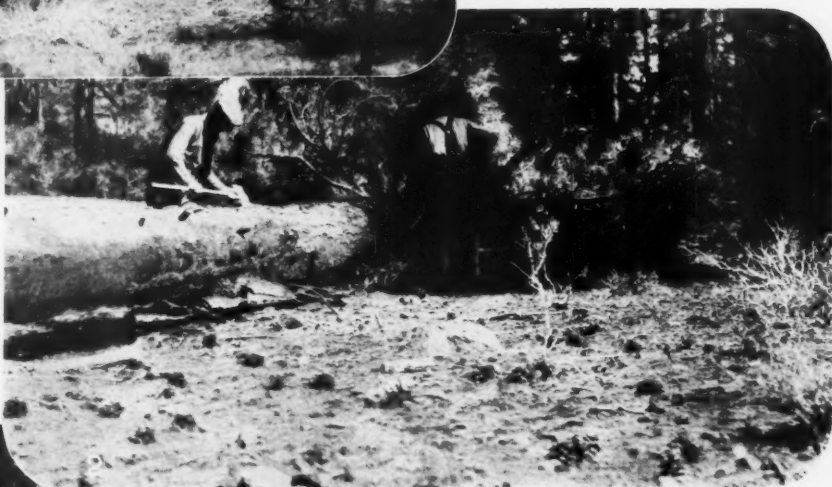
A GHOST FOREST IN THE YOSEMITE

The white dead trunks of many a stand of yellow pine are grim reminders of the havoc wrought by bark beetles.



TREES INFESTED WITH
BROODS OF BEETLES
ARE FELLED

THE BARK THAT HAR-
BORS THESE DESTRUC-
TIVE GUESTS IS PEELED
FROM THE TRUNK



FIRE, THE UNIVERSAL
DESTROYER, IS THEN
APPLIED

WHEN THE SMOKE
CLEARS AWAY THERE
IS ONE LESS BROOD OF
TREE-KILLING INSECTS
IN THE WORLD



work be carefully done and that no details be neglected. Some recent operations have apparently been only partially successful, largely because of a lack of thoroughness.

In order to insure the greatest efficiency and return for money expended in control work, it is necessary to obtain cooperation of all owners over the entire area. Obviously it is going to be an expensive and continuous operation for one owner to clean up the beetles on his land, if the timber around him is left untreated. The broods emerging from the trees on the untreated area

during the next season in order to insure good fruit. So it is in the forest, and although primary control work thoroughly done will break the epidemic, it is later necessary to do a certain amount of maintenance control in order to prevent the beetles from again obtaining the upper hand.

In most areas it pays to destroy all slash, tops and cull logs, since such material forms ideal breeding grounds for some of the primary insects, and also turns out large broods of secondary insects. The last, although they may kill only an occasional tree by



FOOD FOR INSECTS OR LUMBER FOR HOMES?

Into such magnificent stands of century-old timber both the Western Pine Beetle and the Mountain Pine Bark Beetle carry their devastation.

will swarm over onto the control area, and reinfestation will appear.

In the light of our present knowledge of infestations, it is also apparent that unless money is available to cover thoroughly very large units, success becomes doubtful. It is not necessary, however, that whole infestations be covered in a single season, but the work should be planned out for as many seasons as will be required to cover the entire area.

It is further evident that forest insect control must be considered in the light of a perpetual insurance, just as pest control in orchards is an annual affair. Regardless of how much control is accomplished on an orchard in 1925, control operations must be carried on

themselves, are often an important factor in helping the primary beetles to overcome a host tree more quickly. Secondary pests may attack the top or large branches, thus reducing the vitality of the host to such an extent that the primary enemies have far less difficulty in destroying the tree. It should be apparent that everything which tends to make the way of the transgressor hard should be done and nothing which tends to facilitate the destructive work should be allowed to go on.

In beginning control work, the limits, extent and severity of the infestation are determined by survey and the area to be treated is blocked out. This area should be isolated insofar as possible, by high ridges,

open ground, bodies of water, or different species of trees, so that the danger of reinfestation from adjacent territory is reduced to a minimum.

The tract is then divided into administrative units of such size that one or more may be covered each season. The first treatment in the area is termed primary control, and the following treatments are "clean up" or maintenance control operations. As much area as possible is covered the first year. The second year this same area is cleaned up and as much additional acreage as possible is covered with primary control. This process is repeated until the tract is covered, then a maintenance control is kept up over the entire area.

Primary control work is carried on from conveniently located camps. Work starts as early in the spring as weather conditions will permit. The first crew in the field is composed of spotters, who run lines through the entire area in such a way that every tree is examined and those infested are numbered and located on a map so that the treating crew can find them later. The spotter also fills out a portion of a card, which is then placed in an envelope and tacked to the tree. The infested trees having been located and marked, the maps are given to a control crew, which usually consists of three men.

This crew proceeds to the nearest tree to be treated and the tree is felled. Once down, the limbs and top are cut off, the bark removed and piled against the trunk. The limbs and top are added to the pile, a fire line is cleared and the entire mass burned. One man remains to watch the fire while the other two proceed to the next tree to be treated and begin felling it.

The above procedure may be varied in some cases. For instance, where the trees are small, it is often cheaper and quicker to pile a number of trees together and burn the entire pile. If there is a market for timber, the infested trees may be cut into logs and sent through the mill at once, care being used to see that the slabs are burned, or the bark may be removed and burned alone, leaving the peeled log to be salvaged later. All slash and tops should be piled over the stump and destroyed.

A number of these three-man crews work out from each camp and the camps are moved from time to time so that the men may not be required to walk too far to work. Large forces are employed for relatively short periods, as control work must cease when the broods begin to emerge from the tree.

Beetle-abandoned trees become common in early June, so that the camps usually operate for only about two months, April 10 to June 10. This, of course, varies with the location.

Maintenance control may go on for the entire summer and consists in hav-

ing a small crew travel over a large area, picking out any infested trees missed on the clean-up, and also locating and treating newly infested trees. A crew of two men can cover an area of 30,000 to 60,000 acres two or three times a season and be quite effective in keeping the area clean.

Leaf eaters or defoliators require a different method of control. The Gipsy moth might be considered as an example of the forest defoliators, yet the fact that the caterpillars of this moth feed on more than 300 different plants and the fact that they are more of a pest in towns and on large estates than they are in the forest, eliminates them from discussion here. The outstanding forest tree defoliator is the spruce bud worm, whose activities have been discussed in previous articles.

The ordinary method of control against defoliators is to apply a poison to the foliage upon which the insects feed. This method is satisfactory on crops which give a high return each year. It is also warranted on ornamental trees, which are valuable from the aesthetic point of view. The situation, however, is entirely different when we have hundreds of square miles of forests being defoliated. It would be quite impossible from the physical standpoint, as well as prohibitive in cost, even to consider applying spray by the ordinary methods over any such area. On the other hand, even very large forest trees can be, and actually are, sprayed in city, state and National Parks. Here it is a case of protecting public playgrounds, and one tree in such a situation is of more value than an acre of trees in the remote forest.

(Continued on page 254)



AN AIR ATTACK ON THE INSECT ARMIES

At the rate of an acre every three seconds this plane distributes dust over an insect-infested orchard. The method may be practical for controlling forest tree defoliators.

Forestry in the 69th Congress

McNary-Woodruff Bill, Fighting to the End, is Stopped by Filibuster on Congressional One-Yard Line

WITH the adjournment of the Senate at noon, March 4, hope for concurrence in the House amendment to the McNary-Woodruff Bill sent over to the Senate the day before, was snuffed out. The measure was lost in the final filibuster, which also sidetracked the second deficiency bill and a number of other large appropriation measures.

The history of the McNary-Woodruff Bill during the last two weeks of Congress is an interesting one. On the evening of February 23, Senator McNary brought up the bill in the Senate. Objections to its consideration were voted down under the famous "Rule VIII" whereby objected bills may be considered if such is the will of the majority. Senator Overman, of North Carolina, offered his expected amendment, confining all purchases under the Bill to "lands necessary for the protection of the headwaters of navigable streams." The amendment was designed to prevent the Government from buying pine lands in the south and the Lake States. It was voted on once and lost. Later in the discussion Senator Overman called for a division and his amendment was passed by a vote of 34 to 25. The Bill was then passed without objection, carrying the original program of forty million dollars over a period of ten years.

Steps were immediately taken in the House to amend the Senate Bill (S. 718) to make it conform to the House Bill (H. R. 271), which was passed last April with the authorization reduced to two million a year for two years. Chairman Haugen of the Committee on Agriculture, made numerous attempts to secure this action but was unsuccessful until March 3 when his motion to suspend the rules, amend the Senate Bill so it would contain the provisions of the House Bill and pass it, prevailed by a vote of 340 to 17. All that was required then was the concurrence of the Senate in the House amendment to the Senate Bill, which under normal circumstances would have followed promptly. But by this time, the filibuster was under way in the Senate and all further legislation was blocked. Plans to submit a million dollar deficiency item to the second deficiency bill, whether the McNary-Woodruff Bill passed or not, were, of course, lost in the shuffle. The present situation therefore is that only one million dollars—the usual appropriation—is available for the purchase of land under the Clarke-McNary Act.

Other notable measures which met a happier fate at the hands of Congress were the agricultural appropriation bill, carrying a total of \$128,511,739, of which

amount \$17,243,570 is for the Forest Service. This includes \$6,500,000 for forest roads and trails. Items in which increases were secured, include one million dollars for cooperative fire protection under the Clarke-McNary Act which represents an increase of \$290,000 over the present fiscal year; fire prevention work on the National Forests, which is \$77,285 better off and the fire weather warning work which is now provided for in the sum of \$23,529. The latter represents an increase of \$5,073. An item of \$5,000 for research work on naval stores was secured and will probably be assigned to the Southern Forest Experiment Station at New Orleans. Western white pine blister rust goes forward with almost \$100,000 increase and there is a total of \$471,520 for this work through the entire country.

Senate Bill 3963 which provides "for protection, development and utilization of the public lands in Alaska by establishing an adequate system for grazing livestock thereon," introduced by Senator Stanfield in April, 1926, passed both houses and has been signed by the President. It is much like the revised Stanfield Bill, applying to the National Forests and public domain generally. It makes grazing as a use, subordinate to mining, forestry, development of water resources, agriculture and "to the protection, development and utilization of such other resources as may be of greater benefit to the public."

The National Arboretum Bill, after many delays, became a law with the signature of President Coolidge during the closing hours of the 69th Congress. The Conference report was adopted by both houses on the forenoon of March 4. The Bill authorizes \$300,000 for the purchase of land and excludes the park and recreation feature which the Senate provided. The money, however, for immediate development was not made available on account of the failure of the second deficiency bill.

An organic act covering forest research in the United States and sponsored by a number of national associations is proposed in the Bill, H. R. 17406 introduced March 3 by Congressman John McSweeney, of Ohio. Particulars of this bill were reviewed in the February number of *AMERICAN FORESTS AND FOREST LIFE*.

Representative Garrett, of Tennessee, the minority leader in the House, and Senator Hawes, of Missouri, have introduced identical bills calling for the creation of a federal department of conservation, the head of which would be a cabinet officer.



MIRROR LAKE, WHITE MOUNTAIN NATIONAL FOREST, NEW HAMPSHIRE

Some Neglected Values in New England

By ALBERT M. TURNER

Photographs By E. S. Shipp, United States Forest Service

IT is perhaps debatable whether the worst foe of the human race is ignorance or prejudice. I hasten to acknowledge the possession of both these reprehensible attributes to an extent which with the passage of time becomes increasingly humiliating.

Ignorance, if I correctly apprehend the latest teaching, may be inherited, but prejudice must be tediously and painfully acquired. Such ignorance as you perceive herein may derive either from eight generations of New England but the prejudice is most likely due to a New England ancestor or from fifty odd years of neglected opportunity, background and environment plus the training and practice of a civil engineer. Knowledge of these facts may, I hope, serve to qualify somewhat the bitterness of the reader's resentment of whatever it is that I am about to write.

First, then, let me assure you that to a civil engineer park men and forest men look pretty much alike; as between park men and forest men I don't care a continental red cent; and that, as we say in New England, is That.

Words are wasted if we do not agree on their meaning. New England is a definite geographic area, inhabited by individuals who think collectively, if at all, only with the

greatest effort. New England may refer either to the area of the folks, but not safely to an abstract state of mind.

Values are of two kinds, tangible and intangible. Tangible values may be counted, estimated and compared. Food, clothing and shelter, acres of land and dollars, are tangible values, though subject to wide variations. Faith, hope and love, intelligence, good health and beauty, are intangible values, which may vary indeed as widely as the tangibles, but which we can never count, estimate or compare.

In New England, as elsewhere, we spend so much time counting, estimating and comparing the tangibles that we sometimes forget the intangibles. And yet, without the intangibles, the tangibles have no value. Food is valuable only with health enough to assimilate it. Clothes are valuable only as sanctioned by custom. Shelter is valuable only to those with intelligence enough to use it. Acres of land and dollars are valuable only in a society organized upon faith. These ideas are not new, they are at least as old as the time of Plato, but we forget so easily, and ignorance, as well as wisdom, may be acquired.

Let me strive to put this clearly. In New England, the tangible values which we are so busy counting, estimating and comparing, fluctuate with the cultivation or neglect

of the intangible values, which we sometimes forget. Civil engineers and foresters are practical men who live and work in a world of tangibles. Park men unfortunately have to live in a world of tangibles and work in a world of intangibles. They are expected somehow to count the uncountable, compare the incomparable, and "onscrew de onscrutable." All these good fellows can usually agree on one point only, that the other fellows have hoofs and horns. The sympathetic cooperation of these groups is one of the neglected intangible values in New England. The lack of such cooperation is steadily destroying tangible values in New England.

Continental United States, exclusive of Alaska, contains nineteen hundred million acres, of which only forty million are within New England. There is very little room in New England to grow timber for the nation. But every acre in New England may safely count on forty inches of rainfall a year, which is a factor, I am told, in

growing timber. Do we utilize rainfall for growing timber in New England? Well—not much. We rely on it mostly to put out forest fires. Sixty per cent, twenty-five

SAYS THE AUTHOR:

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"The lack of such cooperation is steadily destroying tangible values in New England."

million acres of our forty million, are in woodland, largely growing rich crops of grey birch, alders and scrub oak. Practical foresters say we are getting only ten per cent of the timber that might be grown on that acreage. Tangible or intangible, the value of our rainfall seems to be neglected in New England, it appears almost to have been lightly esteemed elsewhere in locating the hundred and forty million acres of our National Forests, some of which the geographers have charted in dryish looking belts.

So far so good, But Lucifer himself is proverbially unable entirely to conceal the cloven hoof. I come now to the expected and evitable discussion of scenic values. Scenic values involve the element of beauty, and beauty is an intangible value. In

(Continued on page 238)



SCENIC BEAUTY, LIKE ALL BEAUTY, IS AN INTANGIBLE BUT THE LAND ON WHICH IT BLOSSOMS IN NEW ENGLAND IS NOT AN INTANGIBLE. HERE ON THE WHITE MOUNTAIN NATIONAL FOREST IS A GEM FROM NEW ENGLAND'S REAL TREASURE



EDITORIAL

The Fate of the McNary-Woodruff Bill

THERE is no doubt but that the McNary-Woodruff Bill would today be a law had not the United States Senate surrendered its closing days to political filibusters. Notwithstanding Senator Overman's persistent opposition during the entire session, the bill, in amended form, had passed both houses and was just awaiting the Senate's approval of the House amendment, when the filibusters blocked all further legislation. It is unfortunate that the McNary-Woodruff Bill was caught along with a number of other important bills in this last minute complex of political innocuousness. Had it not been for Senator Overman's blocking tactics, the bill would have been finally passed many weeks before the close of the session. It came up for consideration on no less than five different occasions, but Senator Overman succeeded in having it passed over until Senator McNary, shortly before the close of Congress, brought about its consideration and passage under Rule VIII. Senator Overman's objection

that the legislation was unconstitutional was of course misplaced, because the bill merely authorized appropriations for an Act that Congress passed three years ago.

Excluding Senator Overman, the McNary-Woodruff Bill had practically no opposition, either in or out of Congress. More than fifty strong and representative national organizations had endorsed its principles and were urging its passage. The bill, however, is by no means lost. It will be reintroduced in the new Congress, which meets next fall, and the fact that it has been passed by both Houses, even though with amendments, will give it a strength that should assure its early passage. Important conservation measures are not passed speedily. It required ten years, for example, to pass the original Weeks Act. As conservation legislation goes, the McNary-Woodruff Bill, in less than three years, has made remarkable progress, and its advocates may justly feel gratified at its advancement.

The Directors' Loss

THE resignation of Colonel W. B. Greeley from the Board of Directors of The American Forestry Association, announced elsewhere in this issue, is a loss to the Directorate that will be keenly felt. For more than ten years Colonel Greeley has served as a member of the Board. Although one of the busiest men in Washington, he has always found time for the affairs of the Association, and has performed his duties as a Director with that same able and conscientious devotion that marks his work as a public official. He has always had the welfare of the Association at heart, and has been ready and willing at all times to volunteer any task that would serve to strengthen the Association and broaden the influence of its educational activities in promoting sound principles of forestry.

In this same spirit of helpfulness, Colonel Greeley reached his decision to resign from the Board of Directors. From time to time a number of the members of the Association have questioned the wisdom of an official of the Government serving as a Director of the Association. Their objections are based on the grounds that the Association as a disinterested exponent of public opinion,

is often called upon to take an active stand in public questions involving department and bureau policies, and that in such instances the occurrence on its board of the government official whose bureau is directly involved, serves to subject the Association to public criticism and to handicap its action as an unbiased and independent agency of public opinion.

While there will be a difference of opinion among the members of the Association as to the soundness of this principle, Colonel Greeley himself feels that it merits recognition. Rather than subject the Association to the slightest embarrassment, therefore, he has resigned, and the Directors, with deep regret and a sense of personal loss, have accepted his resignation.

It is gratifying to know, however, that Colonel Greeley in no sense relinquishes his interest in the Association, and his active and earnest support as a rank and file member. For his long and constructive service as a Director the Association is indebted to him to a degree that only those who have been closely associated with him can fully appreciate.

A Department of Conservation

REPRESENTATIVE Garrett, of Tennessee, introduced in the National House of Representatives on February 24, a bill to create an executive department of the Government to be known as the "Department of Conservation." A similar bill was introduced in the Senate by Senator Hawes, Missouri. The object of the legislation is to centralize in one department of the government the administration and development of the forest, park and wild life resources owned by the people of the United States. The bill would transfer to the newly established department, the Forest Service and the Biological Survey, now in the Department of Agriculture, the National Park Service, now in the Department of the Interior, and the Bureau of Fisheries, now in the Department of Commerce. It would also place those National Monuments, at present administered by the Department of Agriculture, under the Department of Conservation, whose chief officer would be a Secretary of Conservation, appointed by the President at a salary of \$15,000 a year.

Introduced during the closing days of Congress, it was not to be expected that the measure would receive serious consideration before adjournment on March 4. Nevertheless the bill is of interest and importance, in that it embodies in tangible legislative form a need which is more and more gaining public recognition. At the annual meeting of The American Forestry Association in New Haven on January 28, George D. Pratt, President of the Association, called attention to the divided and uncorrelated authority which now characterizes the Federal Government's administration of the nation's natural resources. Mr. Pratt said: "I want to stress the importance of conservation as a major policy in federal stewardship. In the United States, exclusive of Alaska, the Federal Government is custodian of over 365,000,000 acres. This represents a land area of more than 570,000 square

miles, title to which rests in the people of the United States. This land is divided among a score or more of uses and administered by many different bureaus, some of which are following definite conservation policies, but largely unrelated and uncoordinated one with another. Others have no conservation policies or authority. The situation is inconsistent and a reproach upon national economy.

"I believe the time has come in the economic development of our country when we must demand that our Federal Government adopt an all inclusive conservation policy and coordinate its activities into a separate department to be known as the Department of Conservation, or one equally well named. The natural resources owned by the people of the United States are far too valuable and too important to the permanent development of our country to permit any part of them to be dissipated by the traditions of departmental administration."

Mr. Garrett's bill is a meritorious one. Its defect is that it falls short in failing to embrace all activities and resources which should be lodged in a Department of Conservation. It omits the public lands, the oil and mineral resources of the national government, and the remaining national monuments, some of which are at present administered by the National Park Service and some by the War Department. These are all natural resources of tremendous value. A Department of Conservation, if it is fully to eliminate the present handicaps and hazards of divided administration, and to serve its highest purpose, should embrace all natural resources coming under the stewardship of the Federal Government.

The Garrett bill (H. R. 17321) will not be forgotten with the Sixty-ninth Congress. It is certain to be introduced in the new Congress next fall, and, unless we are greatly mistaken, it will be the liveliest conservation issue of the immediate future.

A Forestry Gift to Cornell

THE gift of \$130,000 for the endowment of a professorship in forest soils to Cornell University, made last month by the Charles Lathrop Pack Forestry Trust, is a contribution to forest research which will strengthen immeasurably the profession of forestry at what is probably its weakest point. The growth of trees is one of the most fascinating and important complexities of nature. It is not sufficient that foresters shall know how trees grow. Their task is to grow them—to make the soils with which they have to deal produce the highest yields, either in quality or quantity, or both. To do this with unflinching success foresters must know both their trees and their soils.

There is probably no field of forest research in which less systematic study has been made than that of forest

soils. Neither the government's experiment stations, nor the forest schools have had the money or facilities for comprehensive studies of the subject. As a result every forester is embarrassed and handicapped by lack of exact knowledge of soil influences and their relation to what, in his vernacular, he calls tree sites. And he will continue to be embarrassed and handicapped until research has drawn the facts from the soil.

Mr. Pack has made other scientific contributions to forestry, but his recognition of the need of research in forest soils is without question the most important and commendable. Who knows but that in this field may be found the secrets of tree growth and species selection that will give to industrial forestry that assurance of certain and lasting success which it now so badly lacks.

Chicle—Source of Chewing Gum

By WILLIAM D. DURLAND

With photographs by the author



LEAVES OF THE SAPODILLA,
OR "CHEWING GUM" TREE,
COLLECTED IN PETEN,
GUATEMALA

IN the southern provinces of Mexico comprising Campeche, Yucatan and Quintana Roo, the northern part of British Honduras and the department of Peten, in Guatemala a unique industry exists. It has no equal anywhere and is peculiarly confined to this one geographic location. This is the chicle industry or as the product is more popularly known to the American public, "chewing gum."

Nature has produced many wonderful things since the time of earth's creation, the majority of which remain unexplained. So it is with the occurrence of true "chicle bush" on this chosen spot. It is found here in exploitable quantities and nowhere else. The sapodilla tree (*Achras zapota* L.) of the family *Sapotaceae* is the only source of true and legitimate chicle. The word itself is properly applied only to the gum which results from processing the milk white latex of this tree. The best chicle is produced in Quintana Roo. Then follow the provinces of Yucatan and Campeche, Mexico. British Honduras, which is well exploited of this resource, is next in order and the great Peten of Guatemala which produces the worst gum comes last. Although there is a slight difference in the chemical composition of chicle as obtained from different sapodilla trees on different soil sites in the region, the variance in the quality of the marketed product can not be laid to this cause. It is due indirectly to dame nature herself, who again in her own peculiar way, has so distributed other inferior latex producing trees, the gum of which is employed by *chicleros* or (gum collectors) as adulter-

ants and substitutes for true chicle. It happens that the smallest amount of these inferior substitutes occurs in Quintana Roo and the greatest number in Peten. Thus the *chiclero* in his search

for trees to produce his seasonal poundage for the contractor under whose jurisdiction he works, finds fewer adulterants to aid him, in Quintana Roo and a veritable paradise for the gentle art of adulteration in Peten. The *chiclero* himself is a most interesting character. He is a skilled worker of no mean ability.

He is resourceful, a nomad, intelligent, deceitful, wary and is perhaps the most highly exploited individual in existence. Paid by credit but 12 cents a pound for his gum, he must live in the "bush" or *chicleria*, from June to February, with nine months of rainy weather to work in. He must find his trees, establish his camp, work the trees, extract the latex and prepare the gum; and if he fails to produce 2,000 pounds of gum for the season, which is usually the case, he is indebted for the amount advanced to him by the contractor at the beginning of the season. And so it goes, always in debt and practically always in the "bush" that we of the more populous regions may chew gum. Who originated this practice? It is said to be of American origin, but even be-



A CHICLE OR SAPODILLA TREE

This has been freshly cut, and shows the milk-white latex in place en route, via the cuts, to the collecting sack,—a touch of tropical bush in the background.



"LUPE"—THE CHICLERO

He is just descending a sapodilla tree after having finished cutting it.

fore the American Indians were using spruce gum in North America, the Mayan Indians were chewing chicle in Central America. Be what it may, the United States consumes about 95 per cent of the total production, and you can draw your own conclusions.

The latex or milky juice is secured from the tree by a series of oblique, connecting cuts, made by a long-bladed matchete and running the entire length of the bole, encircling the tree as they ascend. From one to 60 quarts of latex are thus secured from each tree, the quantity depending upon the condition, size and productive ability of the individual specimen. Once a tree is tapped, from 4 to 7 years are required for it to sufficiently recuperate to permit retapping. Some trees never recuperate. Many die. I have made special investigations in this region of chicle production and estimate that 15 per cent of all trees tapped die as the result of excess cutting. Some trees produce no latex at all; others are what the *chicleros* term "two chivo" trees, that is those

producing fifteen gallons of latex. With an average of 6 quarts and based on a 20 per cent moisture content a tree will supply 6 to 12 pounds of gum with an average of 9 pounds.

The *chiclero* ascends the bole of the tree by means of climbing rope and spurs. He begins his cutting at the bottom and continues making his cuts as he ascends. The latex flowing drop by drop, at the rate of from 98 to 150 drops per minute, gradually diminishes in flow until within two hours time the average tree of 36 inches in diameter and 30 to 35 feet of cut bole is bled out. The latex is collected as it flows, in a canvas sack or *bolsa* at the base of the tree to which it has been conducted along the zigzagging channels by a *palma de escobar* leaf. Tropical showers permitting, the *chiclero* collects pure latex, otherwise it is mixed with rain water and his work made more

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A RICH YIELD

This sapodilla gave five quarts of latex. Notice the latex running in the cut channels, over the "palma de escobar" leaf spout and into the "polsa" collecting sack.

A Proclamation

By the President of the United States of America

IN ACCORDANCE with the custom established by my predecessor, I have yearly proclaimed an American Forest Week. I do so again in the belief that no other of our internal problems is of greater moment than the rehabilitation of our forests, now so hopefully begun but needing the strong support of our collective will and intelligence. Through joint arrangement, Canada is observing forest week concurrently with us.

One-fourth of our soil is better suited to timber-growing than anything else. I can not escape the conviction that our industrial and agricultural stability will be strengthened by bringing into full productive use this great empire of land. Although much progress has been made in public forestry and hopeful beginnings in private forestry, we still have a vast aggregate of idle or semi-idle forest land, and another large aggregate of poor farm land that might more profitably grow timber instead of adding to the problem of agricultural overproduction.

Consider what blessings the use of this land for intensive forest culture would bring to our country. Our migratory forest industries would be stabilized and made permanent. Rural industry would be greatly strengthened and vitalized. Agriculture would find in silviculture a strong ally, providing markets for farm produce and for surplus labor. Our farms themselves contain nearly a third of our woodland—an enormous potential farm asset if handled for continuous timber crops. With widespread forest culture, new wealth would spring up for the support of roads, schools, and local government, and the rural regions would enjoy a larger share of the national prosperity. For some of our surplus capital now seeking investment abroad, new outlets would be found in forest production. Our people would then have an assured supply of timber and would see the hills and the waste places reclothed with forests for their pleasure and inspiration.

American Forest Week gives a useful opportunity for taking counsel on what can and should be done to bring these neglected and waiting lands into use. It also gives an opportunity for each citizen to consider his own responsibility in the common task. It is not enough that the Federal and State governments have joined hands with the landowner in the first step toward forest rehabilitation, protection against fire. Every citizen whose thoughtless act may endanger the woods has the obligation of respecting the forest and guarding it from its worst enemy, fire.

NOW, THEREFORE, I, CALVIN COOLIDGE, President of the United States, do hereby designate and set aside an American Forest Week the week beginning April 24 and ending April 30, in this year of 1927; and I do earnestly urge that during that week the thought of all citizens be directed to the need of preventing forest fires and to the measures necessary for the preservation and wise use of our forests. I recommend to the Governors of the several States that they likewise designate this week for special observance, and that where practicable and not in conflict with law or custom, Arbor Day be observed on some day of the same week. I urge that in each State special exercises be held in the schools and that the press and the general public give consideration to the forest needs of their respective commonwealths, to the adequacy of such legislation as may be on their statute books, and to the possible need for further enactments. And I urge that all who own forest lands give consideration to the feasibility of so using them that their benefits may continue in perpetuity.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this fifth day of March in the year of our Lord one thousand nine hundred and twenty-seven, and of the Independence of the United States of America the one hundred and fifty-first.

[SEAL]

By the President:

JOSEPH C. GREW,
Acting Secretary of State.



American Forest Week—

Man's Symbol of Himself in Search of Happiness and Prosperity

THE establishment of American Forest Week as a part of American life has been accepted as a sort of new gospel. A fresh significance has been given our forests, our idle lands, our problems of taxation, our economical development, all of the multitudinous ways in which our timberlands can be expressed. Partly, this is the result of a contagion that has settled over thinking people to the ends of forestry and all its elements, and partly it is the result of the tireless efforts of forest thinking people. The whole country is turning to conservation. The people are stimulating one another, and exchanging ideas. The fifth anniversary of American Forest Week, beginning April 24 bids fair to reach a new enthusiasm.

Everywhere there is activity; plans are being formulated, speeches are being prepared, and foresters are outlining future needs of the forests with all the popular appeal at their command. The stage is all set and the play has been written in a tongue that every race and sect and creed can understand. For one week the American forest will be prince regent, swaggering past its subjects, instructing, delighting, entertaining, pleasing; moving the world to laughter and to serious thought. For one week the forests will be the great drama.

But after that, what? Will American Forest Week assume the "tag day" aspect and fail in its original purpose to impress upon the public the significance of forest protection, conservation, and utilization? Or will its teachings become an established part of American life and the knowledge gleaned from it become an orderly and cheerful habit? A few days of extra vigilance and well-meant resolutions on the part of the public, coupled with various emotional activities are in no way a solution to our forest problems nor the real significance of American Forest Week unless we do something more about it than the recital. All of the knowledge gathered in a lifetime is of little value unless it be put to use; knowledge of the ravishes of forest fires and of the meaning of forest waste is not a true cohesion to the purposes of American Forest Week until we regulate our habits accordingly.

It is not to be expected that forestry should be, in all its workings, a household word. Human interests are very conflicting. The sunshine and the rain that makes one man's harvest may spoil another's; and, as with human nature, so with human contrivances. The most the foresters can

ask of their efforts is that they shall be, in the main, clearly beneficial to the nation and to the people.

This is the sublime purpose of American Forest Week, to make the most of our present forest situation. There is no fairy wand to conjure from the mystic East new forests or adequate provision for their utilization. There is no fairy wand needed to bring back our impoverished forests and idle lands, or to prohibit waste and suppress fire destruction. Education and application are the implements of flourishing forests and permanent forest industries. American Forest Week is to encourage and promote education and the people who will at least know enough to see their own ignorance need only to form the habit of application to offset the need of drastic laws, unnecessary troubles, and unreasonable taxation.

But it is no simple matter to interest such portions of the population as are not directly involved in any particular forest occupation in the problems of forestry. Many people out of the industry, and ninety per cent of the country's population are inclined to base their opinions on prejudices rather than on knowledge of facts. Yet, it is the average citizen, working behind a plow or over a desk, who is the real reason for American Forest Week. He or she need not be highly intellectual if they have common sense and a spirit of responsibility.

The greatest good that can come out of American Forest Week is not entirely a matter of education, important though that is, but public facilitation of tree growing, individual cooperation in forest fire suppression, and the promotion of forest utilization to the best needs of the nation. We must accept our forests not only as a responsibility, but as an opportunity. They belong to everyone. They are what they stand for in the nation—an embodiment of economical development, industrial stability, and public recreation. Their future is an issue that cannot be straddled nor its responsibility side-stepped. The public must recognize its obligation to future Americans.

Thanks to the straight-thinking leaders of American life, there is no further need for ignorance. The basic principles of forestry are not wrapped in a blanket of obscurity; instead, they are being broadcast throughout the world in a universal language, to be used and enjoyed to an extent hitherto unparalleled. American Forest Week is man's symbol of himself in search of happiness and prosperity.

Forest Activities for Everybody

More Suggestions for Arbor Day, American Forest Week or Conservation Field Day



ARBOR DAY, American Forest Week, Conservation Day and similar occasions have become well established. Each year the President in his American Forest Week proclamation calls upon all citizens to consider thoughtfully and constructively our forest needs. More widespread observance is evident each year and we are no longer surprised to hear the "gospel of forestry" from the pulpit, nor the doggerel of forestry in song and speech, before any type of organization. All of this is constructive but there is still demand for suggestions as to how to observe American Forest Week. The best answer comes from experiences reported over the past five years.

Clergymen have sought to do their part. Dr. A. C. Millar, of Little Rock, Arkansas, said recently that he did not hesitate to preach about forestry. "If in the pulpit," he declared, "I knew someone's house was burning down, I would not hesitate to announce it nor to urge my congregation to help. Why then should I hesitate in urging them to stop forest fires which are destroying the trees from which the houses of their children will be built?"

Without challenging the thorough knowledge of all clergymen, the following references are appropriate as Bible readings on Sunday of American Forest Week of any year:

Uses of Wood—Isaiah XLIV, 14-19; I Kings V, 5-6-15; VI, 9-36.

Forest Fires—Isaiah IX, 18-19; X, 17-19; Ezekiel XX, 47; Exodus XXII, 6; Joel I, 18-20.

Trees and Immortality—Job XIV, 7-10.

Miscellaneous references—Jeremiah IX, 10-12; XVII, 3-7-8; XXI, 14; XXII, 7. Isaiah XXXIII, 9; XLIV, 14; LV, 13; LX, 13; LXI, 3-4.

In many parts of the country, park officials have found special forest weeks or Arbor Days appropriate times to launch campaigns of tree planting, park development and clean-up efforts in behalf of fire prevention.

The General Federation of Women's Clubs has become, through its Department of Applied Education, well informed and helpful on national and state conservation measures. One of the most useful special campaigns conducted by this organization is that for "Outdoor Good Manners." This is an appeal to a sense of fairness in American citizens to leave their camp or picnic spots as clean and delightful as when found. This campaign alone has appreciably reduced man-caused forest fires. The Federation has also done much to popularize the living Christmas tree idea and the establishment of club forests.

Among the schools and boys' and girls' organizations there is a growing interest in pageantry. The subject of forestry lends itself most admirably to outdoor plays, masques and

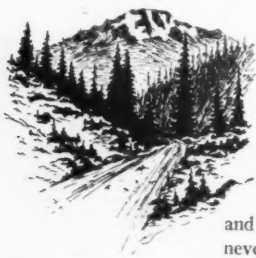
pageants, as well as the same type of thing indoors. Children themselves may be encouraged to write plays and dialogues based on stories illustrating the dependence of the human race on forests and featuring beauty, fairy lore and woodcraft. This activity is highly developed in the Pacific Coast and Rocky Mountain states. References to typical plays of this sort are given in the program on the next page.

Essay contests have become common throughout the country. Two notable ones in the last two years have been held in Louisiana and Ohio. If such contests are properly guided, competitors will gain from them clearer ideas of the conservation needs of the country. But guidance is absolutely essential to see that emphasis is put in the right place. Essay contests, as well as fire protection or nature study poster competitions, may be sponsored in local schools by Rotary, Kiwanis and similar organizations. Nor is it too much to ask that organizations of this kind inaugurate contests for the best forestry accomplishment on the part of groups such as Scout troops, 4-H Clubs and Camp Fire Girls.

Stunts which may be suggested are: Cleaning up a grove, camp ground, or farm woodlot; planting a thousand trees on town or city watershed; building a piece of trail needed for fire protection, under supervision of state forester or national forest supervisor in appropriate regions; posting a section of the country with fire warnings; starting a forest tree nursery in school gardening grounds; taking a census of street shade trees under the supervision of local park officials, or actually taking part in the fighting of some large forest fire. The latter opportunity comes occasionally to boys' camps or to Scout troops in villages close to national or state forests.

During American Forest Week sporting goods houses, groceries, and other companies may help by including a forestry blotter, card, book mark or calendar in each package which is sold. The advertising ingenuity of the average merchant will suggest to him a slogan, cartoon drawing or short message appropriate to his customers.

In one state the American Legion has made it compulsory upon its posts to hold one meeting a year devoted to forestry. Trade associations and fraternal orders may well follow this example. Speakers may be secured usually by correspondence with the state forestry department, the nearest federal forest office or the state university or agricultural college. Actual accomplishment in contests, such as mentioned above, is the most stimulating thing in the schools of the country. Next to this perhaps, is the encouragement of the pupils to take charge of their own forestry program. Writing and the delivery of short addresses based upon material which may be secured from the state forester or the Forest Service at Washington may be well encouraged. Suggested recitations and plays appear in the program given on the following pages.



Why We Have American Forest Week

When the weather is good, or even when it is bad and we are well bundled up, we all like to go out into the woods. There is always something interesting to see and lots of things to do that we could never think of on the playground or the street. But for fear that we should think this is the only use of the forest, the President of our country calls on us each year to stop and think how much comfort and happiness comes to us because we have had plenty of trees ever since our country was first settled. During this special week every boy and girl and

every grown citizen of the United States has a chance to hear and learn more about our forests, and better yet, a chance to do something to help preserve them. Some schools can plant trees, others because they are in the middle of a big town or city can only hold a program. But any of us, who goes on a vacation, will remember what he has heard and learned and see that nothing he does will cause a forest fire or spoil the beauty of the woods. Besides this he can warn others to be careful and may sometime even get a chance to help in some tree planting or fire fighting. The more each one of us can do along this line, the more forests we will have and the greater will be our patriotism. This is the biggest reason for observing American Forest Week.

A School or Community Tree Planting Program

SONG:—"America the Beautiful" (or an official State song if available).

ADDRESS:—"Why We Have American Forest Week," or "Arbor Day," or "Memorial Trees." (Examples of addresses on these subjects appear on this page and the one preceding.)

READING OF PROCLAMATION:—Either the American Forest Week proclamation by the President of the United States or your Governor's proclamation for Arbor Day or American Forest Week.

PLAY:—"A Year in the Forest," by Viola Offutt, which is given in full on pages 234 and 235. This is really a pageant which preferably should be presented out of doors; or

"The Planting of the Trees" for small children, published by the Youth's Companion, Boston, 15c. Two principal characters and twenty or more others. Includes beautiful "Tree Song"; or

"The Forest Pleaders" dialogue for seven characters; or

"What Tree is Best," dialogue for three boys and

three girls. (The two dialogues were published in the April, 1926, number of AMERICAN FORESTS AND FOREST LIFE; or

"Masque of the Forest Fire Helpers." Published by the American Forestry Association, Washington, D. C., 5c. For six principal characters and twelve or more others.

RECITATION:—The following are suggested and are all contained in the April number of AMERICAN FORESTS AND FOREST LIFE for 1926, which is on file in many public libraries. "What Do We Plant?" by Henry Abbey; "Good Timber," by Douglas Malloch; "Mother's Tree," "Who Plants a Tree," by Whittier; "A Forest Hymn," by Bryant, and "Grandfathers' Trees."

SONG:—"De Piney Woods"; especially appropriate for the South and available upon request from the Pine Institute of America, Gull Point, Florida.

PLANTING OF TREES:—And short address of dedication by teacher or older pupil.

SONG:—"America."



Arbor Day

All of us like to see a holiday come around and even some of those upon which we get no vacation bring new and interesting things for us to do. None of them is finer than Arbor Day which is set apart by all of our States for observance some time during the year. On this day we are usually given a chance to plant one tree or a great many so that people who come after us may have the same joy in trees that has come to us because of the thoughtfulness of people who planted them when our fathers and mothers were young. But even if we are not permitted to plant one tree, Arbor Day gives us a chance to stop and think of what we owe to the forests. Without them there would be a dearth of wild bird and animal life, no cool places to enjoy on a hot summer's day, too little

water for our needs, no lumber for the hundreds of comforts which it supplies. And worse than that a lack of many common things that we never think of as coming from the woods,—even some of our necessary medicines.

There is still another thing that should make us thank the trees. I think older people would call it "inspiration." It is the thing which has made some of our greatest writers do their best work. It is something that we cannot describe but which makes us love the woods. And so because Arbor Day means more trees for our country each year and brings us closer to the great heart of Nature, it should always be celebrated by boys and girls in every state in the Union.

Memorial Trees



The most beautiful thing about memorials to people who have finished their lives is the purpose they serve in making us remember.

Whether our friends were great heroes in the eyes of the world or not, the finest memorial to them is something useful and at the same time beautiful. Stone has been used the most because it is permanent and will stand all kinds of weather but it is hard to see beauty in stone unless it is shaped in costly forms by the sculptor.

There is another kind of memorial which has made us remember people even though it was not intended for such a purpose.

We speak of the Charter Oak, the Washington Elm and other famous trees which have lived for centuries and which have served in a way as memorials. But it is only since the war that trees and even forests have been planted to remember soldiers who fell in battle. Many fine avenues of such trees stand as green memorials throughout the country today, and usually each tree is named for a soldier or sailor. And so trees have come to serve another purpose for which we have not given them credit. And as they leaf out spring after spring and stand with courage against the storms of winter, they remind us to be grateful for the lives of our friends.





A Year in the Forest

A PAGEANT

By VIOLA OFFUTT



CHARACTERS

Number of each in order of their Appearance

- 5 Pine trees.
- 1 Willow tree.
- 7 Dryads symbolizing innocence.
- 1 Snowman.
- 5 Bunnies, the dryads' playmates.
- 9 The golden sunbeams.
- 2 Bluebirds.

- 7 The drifting clouds.
- 5 The rain.
- 5 The Rainbow.
- 15 Awakening flowers.
- 9 Bees who provide honey, the food of the dryads.
- 7 Butterflies.
- 9 Frost spirits.

Two Forces in Conflict:

- 1 The owl, wisdom.
- 1 The black goblin, Ignorance, who cannot escape from his black caves as long as wisdom is on watch.
- 1 The spirit of fire, who has up to this time been under a coverlet of brown.
- 7 Smokes.
- 15 Flames.

- 7 American Boy Scouts.
- 9 Fireflies, the carriers of tiny lanterns.
- 1 Will-o'-the-wisp, a dryad's spirit.
- 12 Winter curtain.
- 12 Spring curtain.
- 12 Summer curtain.
- 12 Fall curtain.

THE SCENES

1. The forest in winter, hidden more or less by the winter curtain.
2. Prologue given by a school boy and a school girl.
3. Winter curtain parts, revealing dryads making the snow man.
4. Appearance of the bunnies who make their conception of a good snow image.
5. The sunbeams melt the snow.
6. There are bird notes in the air and two bluebirds look for a good place to build a nest.
7. Clouds float idly by.
8. Rain.
9. The rainbow.
10. The spring curtain's coming into position gives the flowers an opportunity to grow.
12. Bees gather honey.
13. Butterflies come.
14. The fall curtain shuts out the view.
15. The frost spirits dance, foreshadowing the winter season.
16. The owl, numbed by their chilly breath, dozes.
17. The goblin escapes and immediately plans mischief.
18. Fire is aroused.
19. The innocent dryads are coaxed to play with the flames.
20. Smoke arises.
21. The forest in flames.
22. Wisdom awake at last, summons aid.
23. Scouts are heard.
24. Scouts return leading the leaping fire spirit which struggles to get free.
25. Other scouts escort the limping black goblin to his cave.
26. The forest, after being gradually restored, looks much the same except that the willow droops.
27. An expedition is sent out to find the dryads.
28. The will-o'-the-wisp hovers near the willow tree.
29. Epilogue.

I. PROLOGUE

(Curtain rises. Two children are seen, standing near the edge of a beautiful forest)

The school boy:

"The groves were God's first temples. Ere man learned
To hew the shaft, and lay the architrave
And spread the roof above them—ere he framed
The lofty vault, to gather and roll back
The sound of anthems; in the darkling wood,
Amid the cool and silence, he knelt down,
And offered to the Mightiest solemn thanks and supplication."

The school girl:

"For his simple heart
Might not resist the sacred influence
Which, from the stilly twilight of the place,
And from the gray old trunks that high in heaven
Mingled their mossy boughs, and from the sound
Of the invisible breath that swayed at once
All their green tops, stole over him, and bowed

His spirit with the thought of boundless power
And inaccessible majesty. Ah, why
Should we, in the world's riper years, neglect
God's ancient sanctuaries, and adore
Only among the crowd, and under roofs
That our frail hands have raised."

The boy:

"But let me often to these solitudes
Retire, and in thy presence reassure
My feeble virtue."

The girl:

"Be it ours to meditate
In these calm shades, thy milder majesty,
And to the beautiful order of thy works
Learn to conform the order of our lives."



II. EVENTS OF THE STORY

(By voice of character concealed in the woods)
Mother Nature, a kindly invisible spirit brooding over all.



YEAR in the Forest is a story of how Mother Nature has managed to protect the trees through all the seasons of the year from their greatest enemy, Fire. Especially when misguided by the black goblin, Ignorance, was this fire dangerous. That an element so beautiful and so useful, when guided, could become so untamable and destructive, when uncontrolled, was a source of much concern to kind old Mother Nature.

In the winter she spread a mantle of snow which made useless any efforts Fire made to destroy. In the spring and summer the gentle rains discouraged the flames, but in the fall when the flowers were sleeping under their coverlet of dry, brown leaves the tiniest flame might be the cause of much damage to the trees, the sleeping flowerets and all of the furry and feathered tenants of the wood. How to protect the forest when winter had travelled farther north and the clouds had floated away to take showers to other parts of the globe was Mother Nature's problem. How the problem was solved in a most natural manner will now be told.

Think of the most beautiful forest you have ever seen! In such a place, oh a long time ago, lived the seven dryads who had the strange experiences described in this story. Through all the changing seasons of the year these innocent creatures frolicked with other inhabitants of the wood who lived near them and who shared with them this lovely playground. In winter, especially on moonlight nights, the dryads might be seen playing in the snow in a way not very different from the way boys and girls of this day play. They liked the rains the spring brought. In summer the birds and flowers and bees were their companions. In the fall they could almost outdance the frost spirits who foretold another snow season, and some people think that if the old owl who was guarding the cave where the goblin, Ignorance, was confined had not become numb with the chilly breath of the frost spirits and dozed for just one minute that children of this day could still see the dryads at their play. Wisdom dozed for just one moment, but in that moment the goblin crept out of

his dark cave, on mischief bent. The very first thing he did was to free the Fire which had been so carefully covered. The dryads, watching the leaping flame exulting in her freedom, were coaxed to come from their hiding places behind the trees and accept the harmless looking torches which Ignorance was urging them to accept. No sooner had they darted into the forest than the torches burst into flames. In a few minutes the forest was a roaring, crackling blast!

The owl, awakened at last, fluttered about in an aimless way, but fortunately recovered enough to realize that the earth children might be of great service. The summons was heard and before long the Spirit of Fire, leaping and straining to be free, was put under control. The goblin, made rather forlorn after his adventure, was forced to limp back to his cave, from which he now has very little chance of escape because it is guarded, not only by Mr. Owl but by Mrs. Owl and several owlets of the new generation.

Spring returned again and again. Gradually much of the beauty of the forest was restored, but how the willow had changed! The green was just as delicate against the darkness of the pines, but the branches drooped almost to the ground. The willow mourned for the dryads who used to play at her feet. An expedition was sent out to find them. The birds were to sing to them, the bees were to gather honey for them and the fireflies were to light the way with their tiny lanterns. It was then that the old owl confessed that, when the danger was near, each dryad had been changed to a will-o'-the-wisp and had floated high above the smoke and flames. To encourage the weeping willow, he said that he was sure that the dryads would return when they learned that the earth children had saved the trees.

One evening at twilight, a light was seen hovering over the willow tree. It was a dryad's spirit. Old Mother Nature was so happy because the forest was now completely restored that she gave to each earth child the gift of an understanding heart. Since then there has been no season of the year when the forests are unprotected.

III. EPILOGUE

The boy:

"Today I have grown taller from walking with the trees

And I think my heart is whiter for its parley with a star
That trembled out at nightfall and hung above the pine."

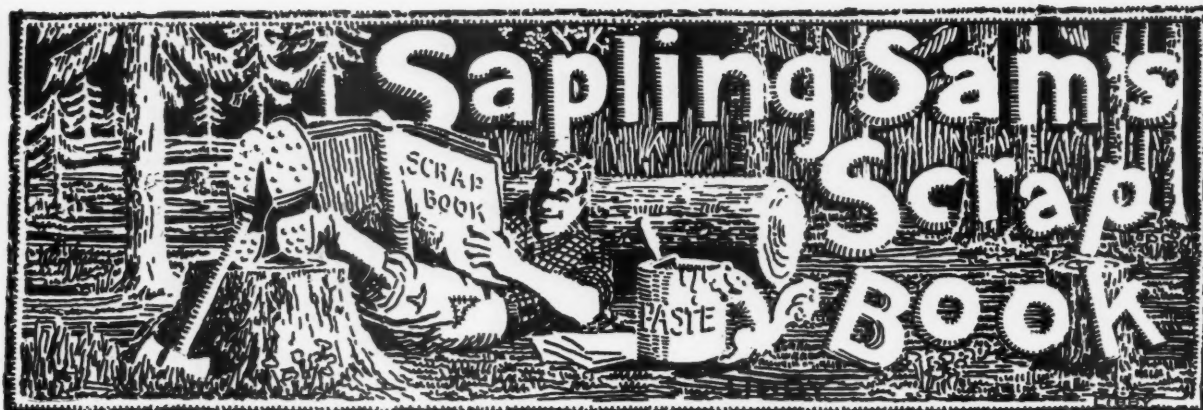
The girl:

"The call-note of a red bird from the cedars in the dusk
Woke his happy mate within me to an answer free and fine;
And a sudden angel beckoned from a column of blue smoke—
Lord, who am I that they should stoop—these holy folk of Thine?"

CURTAIN

Note: The prologue is taken from *The Hymn to the Forest* and the epilogue from *Good Company*. This pageant was produced by Miss Ofutt in cooperation with the children of the John Eaton School, Washington, D. C., in the spring of 1926.





Speed—Vertical and Horizontal

Returning from the Bugaboo Fire recently, where he had packed supplies to the fire-fighters, Percy Chance suddenly came upon a big black bear just below the Coffin Mountain Lookout. The horses became frightened as well as the packer, who suddenly dismounted and climbed a convenient tree. Percy climbed so fast that he arrived at the top before he was aware of it and the tree suddenly broke, dropping him to the ground. Concluding that his feet were more reliable than a tree, he started after the horses, which were going down the mountain in a dead run. In spite of pink chaps and riding boots, Percy passed the horses before they had gone a quarter of a mile, and kicking one out of the trail that barred his way, he yelled, "If you can't run, get out of the way for a man that can."—*Six Twenty-Six* (Forest Service, Portland, Oregon).

Figgers We're Too Busy

In this go-gettin' age about the only time a fellow jest stops and takes time out to use his God-given thinkin' apparatus is when he gets down on his back with the flu or gets himself detained in the hoosegow. —Ames Abe in *Better Iowa*.

How They Change

Some things begin small and get bigger. In this class are babies, kittens, diseases, buildings, sins, potatoes and family squabbles, also several other things.

Some things begin large and get smaller. In this class are anticipations, plum puddings, enthusiasms, resolutions, honeymoons, boastings and flannel underclothes.—*Federation News* (California).

And we might add forest fires to the first class and the fun of fighting them in the second.—*S. S.*

Touchy

She was in Alaska looking over a fox farm. After admiring a beautiful silver specimen she asked her guide: "Just how many times can the fox be skinned for his fur?"

"Three times, madam," said the guide gravely. "Any more than that would spoil his temper."—*West Coast Lumberman*.



Raves The Bard

*Comes the springtime with its flowers,
Falls the rain in April showers.*

*Beams the northward-moving sun,
Shines the moonshine (what a pun?)*

*Buzz the busy bumble bees,
Burst the buds on waking trees.*

*Nod the flowers with fragrance drunk,
Spring is came! for all this bunk.*

—*The Fertilizer Review*.

We Didn't Catch Any Either

Fishing does not consist chiefly in getting fish, any more than berrying consists chiefly in getting berries, or hunting in getting birds. The essence of fishing is the state of mind that accompanies it. It is a semi-contemplative recreation providing physical quiet with just enough motion to prevent restlessness, being in this respect like whittling, and thus it brings about in you a perfect state of poise, most restful in itself and in complete harmony with the midsummer season.—*Anon*.

This poise business is apt to be misleading if you're fishing in the ocean on a rough day from a small boat.—*S. S.*

Soon We Will Know

On Friday night of this week the Big Berthas will be exploded when the county's most distinguished debaters meet at Washington College to settle for all time the question of whether or not Brutes have reason.

The question is, Resolved: "That Brutes Do Reason." The Affirmative is represented by a quartette of "hard b'iled" slangsters who claim to be tough. They claim to be so hard that they can walk a barbed wire fence barefooted, with a wild cat under each arm and never get a scratch.

And the Negative claim that they have a line of gab that will offset anything their meek competitors can produce. They claim to be hard and tough, and say they use the carcass of a porcupine for a shaving brush, chew rattlesnake bones for exercise and use the blood of a certain cat for hair tonic.—*Jonesboro (Ky.) Tribune-Herald*.

Sudden Fossils

Ranger Gilliam of the Grand Mesa Forest (Colorado) has just worked out a formula for hardening mice that works perfectly. No more will army blankets need be suspended from the flag pole or boots be shaken out to allow more room for feet. No more tracks will appear in the flour bin or in the mouse-proof grain bin. And this all came about by the fact that Gilliam found out that the cement in the barn was the only thing not bothered by mice and he mixed a little corn meal with it so they would eat it and make a clean sweep. But, lo and behold, on arising the morning after, he found hard mice around the water trough along the ditch and at the spring. The combination seemed to create a greater thirst than the one that follows "the day after the night before," and when the afore-said quadrupeds quenched this thirst they started to set and remain set, and got right hard about it.—*Forest Service News-Letter*.

Ching Chow Says:

The superior man's strength is revealed by the winds of adversity—It is only when the winter comes that we know the pine and cypress to be evergreen.—*The Chicago Tribune*.

The new way to know — **Trees**

YOU can be the owner of *twelve live trees* at slight cost. And be your own nurseryman. *Four-year-old transplanted Norway Spruces*—with fully developed root systems—have never been sold in this way before. The lives of these trees are *fully insured by The Living Tree Guild*. If any should fail to prosper, and are reported within a year, The Living Tree Guild will replace them without cost.

THE LIVING TREE GUILD has chosen the Norway Spruce as the tree best suited to carry its message. In addition to their own charm, simplicity, and hardihood, spruce trees bring purer air, with the healthy fragrance of the forest that tends to check hay fever and offset the effects of the carbon monoxide gas that accumulates in the air from automobile exhausts. Moreover, as The Department of Agriculture says, "Trees improve the soil and store up soil moisture." Also, tree-planting is an invitation to birds, and leads to a welcome increase in bird population.

Every Tree **GUARANTEED** To Live

This is made possible by a special method of packing and shipping with the roots encased in Spagnum Moss, a peculiar swamp moss from the heart of the woods. It makes a deep mulch, which holds moisture al-

most indefinitely. Thus splendid transplanted specimens can be shipped by parcels post anywhere in the United States and will arrive virtually as fresh as the day they were taken from the home soil.

TWELVE BEAUTIFUL NORWAY SPRUCES *only* **\$3.95 for all**

These sturdy, fragrant, shapely trees **will double in value after one year's growth**. In a few years they will actually be worth many times more than you paid for them, and also greatly increase the value of the property where they are planted.

THE LIVING TREE GUILD

National Headquarters For Guaranteed Living Trees
303 Fifth Avenue New York, N. Y.



LIVING
TREE
GUILD, Dept 353
303 Fifth Ave.
New York, N. Y.

Please deliver at the right time for planting twelve Norway Spruce 4-year transplants.

GUARANTEED! If \$3.95 is not enclosed herewith you may send C. O. D. (Please add 20c. for mailing 1 doz.; 30c. for 2 doz.)

Name _____

Address _____

City _____ State _____

() Check here if you want **Two Dozen** for \$7.50.

Some Neglected Values in New England

(Continued from page 225)

a world of practical men the petitioner for scenic beauty is accustomed to general denunciation as an hysterical sentimentalist, and he commonly develops an inferiority complex that keeps perpetually framing apologies for breathing. The practical men are in conference over their tangibles and nobody has any time to waste on him. And the practical men are always able to detect the scarcity of moisture when the well runs dry.

New England has a fresher object lesson on her back doorstep—the front doorstep being unquestionably Cape Cod. New England slopes toward the Atlantic Ocean, and faces, however dubiously, the rising sun. The back doorstep sags a bit with the traffic of Westchester County, as any trustworthy map will show. Practical men in Westchester County noticed a few years ago that something was the matter with their immediate environment, and promptly concluded to do something about it. One thing led to another and they finally began to buy land and build parks and parkways. In the course of these somewhat belated activities they tried to spend thirty-three million dollars in three years, and have almost succeeded in doing it. Beauty, you know, is an intangible value, but the cost of restoring it is always tangible enough, even for practical men. Four per cent on the Grand List is what that means in Westchester County, mostly chargeable to previous neglect of intangible values.

Four per cent on the Grand Lists of the New England States is four hundred and eighty million dollars. But we get the object lessons free. We get the object lesson for nothing, and in New England, as elsewhere, that is just about the value we seem to place on it.

Now, let's get this straight. Scenic beauty, like all beauty, is an intangible, but the land on which it blossoms in New England is not an intangible, not by a darned sight, and tangible values fluctuate with the cultivation or neglect of the intangibles. Scenic beauty, like any other beauty, in a world of practical men, is easily destroyed by neglect, and it costs like the very Old Boy to restore it, but in the long run even practical men will pay the price. Practical men are now taking up in a serious way the problems of New England. It seems that agriculture in New England is not what it was a hundred years ago, if it ever was; we have heard about that for a long time and our industrial centers have learned to bear it with becoming cheerfulness. But just recently it seems that some of the other states are making boots and shoes, cotton cloth and Yan-

kee notions, on their own, as you might say. It has come to pass that New England buys her own dollar clocks for seventy-nine cents by mail from Chicago, Oshkosh and Kalamazoo. This is, as we say in New England, different. New England is surely slipping, and the brakes don't hold worth a cent.

New England has two per cent of all the land in the United States, neglecting again the outlying and far-flung holdings; not quite seven per cent of the population; and rather more than nine per cent of the wealth, counting all and only that which gets itself into the tax lists. Two per cent of the land, seven per cent of the people, nine per cent of the wealth. No wonder we are worried. It must be evident that our case is indeed desperate and requires desperate remedies. We have dredged deeply for neglected values, and among them we have discovered it appears, our Recreational Resources. Here is a real treasure. Without stopping to count them or to examine too closely their precise degree of tangibility, we have consulted the experts and learned that our Recreational Resources have not heretofore been sufficiently advertised.

Three New England states last year swallowed this pill and appropriated a total of sixty thousand dollars for advertising purposes. To this was added the sum of one hundred and sixteen thousand dollars raised by subscription, making a sort of jack-pot of a hundred and seventy-six thousand dollars to advertise New England, including especially its Recreational Resources, in the year 1926.

Now when park men are confronted by advertising men they have been observed to shed somewhat of their shrinking humility, because beauty and publicity are just about equally intangible and elusive. Suppose we undertake a little counting and estimating of our Recreational Resources. We will begin with our public parks and forests, which surely stand at the head of the list, and we will not worry about their status as National, State or Municipal; they are all equally open, each in its own way, to public recreation.

The United States as a whole has now a hundred and forty-seven million acres of public park and forest, of which New England has six hundred and seventy thousand acres, or a little less than one-half of one per cent. That proportion is strictly legal, even under existing statutes, but is it entirely satisfactory for advertising purposes?

To sum up, New England, a part, in

terms of the United States, the whole has in land area, two per cent; in population, seven per cent; in wealth, nine per cent and in public land available for recreation, one half of one per cent. Are these the facts that demand more advertising? I leave that to the advertising man, but I repeat that publicity is an intangible and elusive value.

About our other Recreational Resources I am less well informed. I have not counted our privately owned mountains, lakes and streams, but I have noticed on them a good many signs advertising NO TRESPASS. It is true they are not yet all so decorated, but the general tendency appears to be in that direction.

The people of these United States, acting with apparent deliberation through the various forms of their duly authorized governmental agencies, have now set aside or acquired a hundred and forty-seven million acres of public park and forest, or almost eight per cent of the land area of the forty-eight states. They are steadily acquiring more, and they cling, on the whole, rather persistently to what they have.

Nobody yet knows what percentage of their area they will or ought to devote to these purposes. Existing ratios in different states vary widely with local conditions.

New England, having due regard to the character of its terrain, and for the benefit of its own people, its own timber supply, and its own watersheds, should promptly begin to formulate plans for the acquisition of at least eight or ten per cent of its land area, or three to four million acres. The wisdom of such action is so plainly manifest that its proposal requires no argument, apology or excuse.

It is unquestionably true that advertising has its own function to perform in the world of today. It is also true that New England has tremendous Recreational Resources, which are as yet largely potential, and like our woodland areas, comparatively neglected. Recreation itself is an intangible value and we are only just beginning to appreciate its importance in relation to health. Our abandoned New England farms are on the auction block today because of our neglect of such intangible values.

If the people of New England will more closely observe its rainfall, its climate and scenery, its geographic and strategic position; if the people of New England will seize the opportunities presented by changing conditions instead of stubbornly resisting such changes, and abandon their inflexible state of mind as well as their untenable farms, we may be happy yet.



Reproduction from a painting made on the Piping Rock Club, Locust Valley, Long Island, New York, by Frank Swift Chase

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Among prominent persons and institutions served by the Davey Tree Surgeons are the following:

OWEN D. YOUNG
WALTER P. CHRYSLER
CONDÉ NAST PUBLICATIONS, INC.
PRINCESS AMELIA RIVES
TROUBETZKOY
HON. NICHOLAS LONGWORTH
MICHIGAN STATE CAPITOL
SADDLE AND CYCLE CLUB OF
CHICAGO
JOHN S. PILLSBURY
MRS. HENRY R. REA
CHAUTAUQUA INSTITUTE



JOHN DAVEY
Father of Tree Surgery
Reg. U. S. Pat. Off.

Your trees may be starving under semi-artificial lawn conditions

Davey Tree Surgeons come to you with scientific training, thorough practical skill and organized reliability—real workers

Starving trees? Yes, countless numbers of shade trees are actually starving to death under semi-artificial lawn conditions. The roots are covered by heavy sod and all the leaves and grass raked up and taken away. Thus nature has no means of replenishing the exhaustible food elements that are being constantly pumped out of the soil by growing trees. The inevitable consequence is steadily increasing starvation and steadily decreasing vitality.

Out in the native woods, nature takes care of the food problem for trees by means of the decaying leaves and grass and other vegetation—even the great trunks of trees fall down and decay and return to earth the same elements that came from the earth. Most trees under natural conditions show excellent vitality—most trees under lawn conditions show varying evidence of starvation.

Do any of your trees look sick? Are they dying back at the top? Are there numerous small dead branches? Are the leaves yellowish and sickly looking?

Is the foliage sparse? Such a tree is far gone and in desperate need of quick action. Don't wait until they look that bad.

If a tree is starving, it will show it by shorter annual twig growth. Last year's growth is less than the year before. The growth of the year before is less than that of the preceding year, and so on. A tree either grows or it dies. When it ceases to grow, the end has come.

Many starving trees have been brought back to vigorous health and active growth by proven Davey methods of feeding. Davey Tree Food is scientifically right, as are the methods of feeding. These methods are the outgrowth of John Davey's half-century of marvelous experience and the highly successful record of the Davey organization for more than 25 years.

Davey Tree Surgeons live and work in your vicinity—real Davey trained men and Davey disciplined men. Don't wait until your trees are too far gone. Call or write the nearest office.

THE DAVEY TREE EXPERT CO., Inc., 753 City Bank Bldg., Kent, Ohio

Branch offices with telephone connections: New York, 501 Fifth Ave., Telephone: Murray Hill 1629; Albany, City Savings Bank Bldg.; Boston, Staller Bldg.; Pittsfield, Mass., Stevenson Bldg.; Providence, R. I., 36 Exchange Pl.; Philadelphia, Land Title Bldg.; Baltimore, American Bldg.; Washington, Investment Bldg.; Pittsburgh, 331 Fourth Ave.; Buffalo, 110 Franklin St.; Cleveland, Hippodrome Bldg.; Detroit, General Motors Bldg.; Cincinnati, Mercantile Library Bldg.; Louisville, Todd Bldg.; Indianapolis, Fletcher Savings & Trust Bldg.; Chicago, Westminster Bldg.; St. Louis, Arcade Bldg.; Kansas City, Scarritt Bldg.; Minneapolis, Andrus Bldg.; Montreal, Insurance Exchange Bldg.; Toronto, 71 King St., West; Stamford, Conn., Gurley Bldg.; Hartford, Conn., 36 Pearl St.

DAVEY TREE SURGEONS

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Massachusetts Legislature Frowns on Governor's Plan

The Committee on State Administration of the Massachusetts Legislature has reported against the recommendation of the Governor to consolidate the Department of Agriculture and Conservation. This report has been accepted by the House of Representatives and was being favorably considered by the Senate at the time of going to press.

The Budget carrying \$90,000 for the purchase and development of state forests has passed both the House and the Senate.

A hearing has been secured on a bill to provide free trees for the reforestation of water sheds by towns and cities and to amend the town forest law. Unfavorable reports have been made upon a bill to create the office of Tree Warden of State Highways and on several minor forestry bills. Re-appointment by the Governor of the Commissioner of Conservation is due for a three-year term has not been announced by the Governor.

Purchase of Waterville Tract in New Hampshire Urged

One of the most important matters before the National Forest Reservation Commission on March 7, was a hearing of statements and petitions presented by a delegation of New Englanders urging the purchase as an addition to the White Mountain National Forest, of 22,000 acres located on the headwater of the Merri-mac River, in the town of Waterville, New Hampshire. This delegation, headed by Mr. Allen Hollis, of New Hampshire, came specifically to present a suggestion that the land should be acquired by the

Government in such a manner as to retain the natural forest upon 600 acres located in the scenic section around Greeley Ponds, and to leave an additional area uncut as a protective covering on the higher slopes.

Waterville Valley is one of the most important recreational areas in the White Mountain region, and from statements made at the meeting by a representative of the company which now owns this land, it would seem that the owners are willing to consider an offer for purchase by the Government with the view to meeting the desire of the public that a portion of the area shall be preserved with its heavy timber and associated wild life.

As a result of the hearing, the Commission authorized that the lands be examined to secure information necessary for consideration of the desired purchases.

New Chairman for Oklahoma Forest Commission

Harry B. Cordell, of Manitou, Oklahoma, recently elected president of the State Board of Agriculture and who is thereby Chairman of the Oklahoma Forest Commission assumed the duties of office early in January upon retirement of John A. Whitehurst. Mr. Cordell is a farmer and is much interested in the possibilities of windbreak and wood-lot planting on farms in western Oklahoma. He has enthusiastically endorsed the fire protection and tree distribution work now being carried on by the Commission under the direction of State Forester George R. Phillips and has given his assurance that he will lend every effort to help carry out the work now started and expand it where possible.

Delaware Commission Issues Report

The Commission for the Conservation of Forests in Delaware has issued a remarkable report to the general assembly as a basis of necessary legislation for the protection and management of Delaware's forests. Among the things laid down in the suggested policy are the creation of the following: A department of the State government to be known as the Forestry Department, authorized to co-operate with forest land owners and other state and Federal governments in forest fires; prevention; to purchase land for state forests; to establish State-owned sand-bar land and other non-productive lands as State Forests; to reduce taxes on potential and active forest lands to be classified and separately designated as auxiliary State forests and to provide special protection of the holly tree because of its beauty and commercial value.

A bill has been introduced covering these points of policy and friends of the measure hope for enactment during the present session. Members of the Commission are E. C. Emery, Anna Lee Waller, Willard Springer, Jr., George W. Butz, Jr.

Starvation of Elk to Be Stopped

The problem of preventing the starvation of the southern Yellowstone elk herd in bad winters in the region of Jackson Hole, Wyoming, was discussed at a four-day conference just closed in Washington and out of it has come the first complete plan of administration that considers all the conditions confronting the largest single herd of these magnificent big-game animals. The commission considering the problem was called together by the Secretary of War, chair-

man of the President's National Conference on Outdoor Recreation. Those in attendance were a unit in believing that the appalling tragedy resulting from the starvation of great numbers of elk in severe winters must stop, and the work of the commission was directed specifically to that end.

With the benefit of first-hand and up-to-date testimony as to conditions surrounding the elk herd, made possible by the presence of representatives of all Federal and State governmental agencies interested and of sportsmen's associations and residents of the immediate region, the commission adopted a comprehensive set of recommendations. These were prefaced by a statement that recognized the Jackson Hole elk herd as a natural resource, combining economic, esthetic, and recreational values, in which the State and Federal Governments, private citizens, and civic and sportsmen's organizations are actively and intensely interested.

The history of this herd reveals that hard winters following a period of easy years not only operate to wipe out any surplus but threaten extermination. Losses through starvation present a condition not in harmony with advanced thought in game administration and are wholly indefensible, inhumane, and inconsistent with a national program of conservation.

The Commission determined that the optimum number of elk to be maintained should not exceed 20,000, and all members were agreed that the present winter feed for the elk is insufficient during hard winters for the herd that it is desirable to maintain. It was recommended that the Federal Government acquire certain ranches and other private lands, which, if added to the areas of the existing federal game refuge and the adjacent property of the Izaak Walton League, would provide feed to carry the elk through the bad winters.

An immediate count of the elk in the southern Yellowstone herd was recommended. The count will start within the next two weeks. Proposal was also made that the Biological Survey conduct as soon as possible a comprehensive investigation of the life history of the elk and of conditions bearing upon their maintenance in suitable numbers. It was also recommended that an advisory board meet each year at Jackson to review existing conditions and to recommend such steps as should be taken to promote the general program for the welfare of the elk.

This board will be made up of representatives of the State Game Commission, the Forest Service, the Biological Survey, and local stockmen's and the Dude Ranchers' associations.

A complete program for the handling of this herd of elk will be announced in a report to be published within the next few months.



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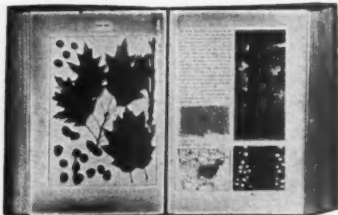
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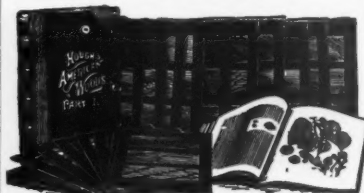


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Senate Committee Exonerates Forest Service

After eleven days of hearings, the Senate Public Lands Committee, on March 1, submitted a report to the United States Senate exonerating the Forest Service of charges of fraud, collusion and other irregularities in the making of a large timber sale on the Malheur National Forest in Oregon. The timber sale in question is one of the largest ever made by the Forest Service involving 890,000,000 feet of timber and the construction of a railroad from Crane to Seneca, Oregon. The contract was awarded to Mr. Fred Herrick, of Saint Maries, Idaho, in June, 1923. Failure of Mr. Herrick to go forward with the construction of the railroad and the cutting of the timber as rapidly as the contract called for, and modification of certain contract provisions by the Forest Service, also figured in the investigation.

The most serious charge against the Forest Service, however, was that of fraud and collusion between Mr. Herrick and certain officials of the Service in the making of the sale and the enforcement of the contract. This was based upon circumstances surrounding the sale transactions during which two members of the Forest Service, subsequent to the making of the sale, resigned their positions with the Government and became employees of Mr. Herrick, the purchaser.

The principal witness against the Forest Service was E. W. Barnes, a timber speculator and promoter of Portland, Oregon, whose activities, it is said, were primarily responsible for the investigation. Mr. Barnes, however, was unable to prove any of his charges, and his testimony appeared to be somewhat discredited when Mr. E. E. Flood, Vice-President of the Exchange National Bank, of Portland, who submitted the bid for Mr. Herrick, testified that on the date the bids were opened Mr. Barnes offered him \$25,000 to withdraw his bid.

In its report to the Senate, the Public Lands Committee stated:

"There is no evidence in the testimony to substantiate a charge of conspiracy, fraud or collusion on the part of anyone connected with the so-called Herrick contract, or with the Forest Service or Mr. Girard or Mr. Klobucher, and it is the opinion of the Committee that these gentlemen should be wholly exonerated from any charge of conspiracy, fraud or collusion.

In concluding its report the committee, commenting upon certain modifications of the contract, recommends that Mr. Herrick be required to begin cutting of timber on and before October 1, 1927, and that the railroad between Burns and Seneca be in operation as a common carrier for freight and passengers on or before October, 1927.

South Carolina Still Persistent

Forestry bills have been introduced in the Senate and House of South Carolina calling for the establishment of a forestry commission which will have five unpaid commissioners representing industry, agriculture and the public at large and authorized to employ a state forester. An appropriation of \$10,000 is provided to cover the first year's work. The South Carolina Forestry Association has worked with admirable persistence for several years on a similar measure and the prospect is good for the enactment this year.

Southern Forestry Congress

While this issue of American Forests and Forest Life was on the press the ninth Southern Forestry Congress was in session at Jacksonville, Florida, March 22, 23 and 24. Among the speakers were included United States Senator Duncan U. Fletcher, of Jacksonville; Don P. Johnson, of Okeechobee; B. F. Williamson, of Gainesville; J. G. Peters, H. N. Wheeler and Will C. Barnes of the Forest Service at Washington; Roland Turner of the Southern Railway System, Atlanta; Roy L. Hogue, State Forester, Jacksonville, Missouri; Col. Joseph Hyde Pratt, Chapel Hill, North Carolina; Col. Page S. Bunker, State Forester, Montgomery, Alabama; Henry Hardner and Major J. G. Lee, of Louisiana; W. K. Williams of the Extension Service, Little Rock, Arkansas; H. M. Wilson, of Jacksonville, Florida; State Senator I. J. McCall, of Jasper, Florida; and Lenthall Wyman of the Forest Service, Starke, Florida. President H. L. Kayton, of Savannah, was to open the meeting and the arrangements were in charge of a committee under the leadership of Mr. A. A. Coult, of Fort Meyer, and Secretary E. O. Siecke, State Forester of Texas.

The objectives of the meeting were stated as a thorough planning for support of the law establishing a forestry department in Florida, a review of general forestry program in the South and giving special attention to the naval stores industry.

National Conference on State Parks

Bear Mountain, in the Palisades Interstate Park, will be the scene of the Seventh National Conference on State Parks, May 17-20. A special opportunity will be given delegates to study the six divisions of the Interstate Park and especially Harriman State Park, which was established in 1910. There will also be a trip over the Westchester County Park system, said to be the most extensive one of its kind in the United States.



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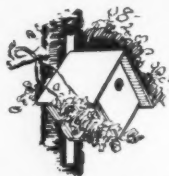


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NEW JERSEY

Col. Greeley Resigns His Directorate

Colonel W. B. Greeley, Chief of the United States Forest Service, who has for many years been a director of The American Forestry Association, submitted his resignation to the Board of Directors at its last meeting and the Board with great reluctance accepted it, effective March 15. Colonel Greeley was re-elected to the board for a five-year term, beginning January 1, 1927, but feels that it is to the best interests of the Association that he retire as a Director. His decision is based upon criticism made from time to time by a number of members of the Association who feel that an officer of the Government should not hold office as a Director of the Association, in that such policy deprives the Association of the independence from official influences which it should have in the public mind when dealing with controversies involving governmental policies.

Referring to a number of criticisms of this character which were made at the time of the grazing controversy a year ago, Colonel Greeley, in his letter of resignation to the Board said: "A similar viewpoint has been expressed, in connection with my recent re-election to the Board of Directors, by a number of very sincere and loyal members of the Association. They believe that, as a matter of principle, officials of the Forest Service directly identified with forest policies and activities of the government should not be officers of the Association. They believe that such a connection tends to embarrass the Association and reduce its influence as a disinterested exponent of public opinion, when issues bearing upon these same federal policies and activities arise.

"It must be recognized that there is considerable merit in this apprehension. It has point at this special time because a considerable number of members of the Association do not agree with my position regarding legislation dealing with grazing on the National Forests. They rightly look to the Association to be an entirely disinterested, as well as influential, leader in protecting the public interests in this matter. I would dislike very greatly to have the Association suffer the slightest embarrassment in this connection on account of my inclusion on the Board of Directors. Similar situations are apt to arise at any time in connection with conservation policies or proposals bearing upon activities of the federal Forest Service.

In accepting his resignation the Board of Directors told Colonel Greeley that it took this action with the greatest reluctance and only because it was clear to the members of the Board that his mind had been finally and definitely made up. His retirement, the Directors said, will be a great loss to them personally and to the Board as a whole. Colonel Greeley has been a member of the Board for twelve years. His successor will be named by the Board at its next regular meeting.



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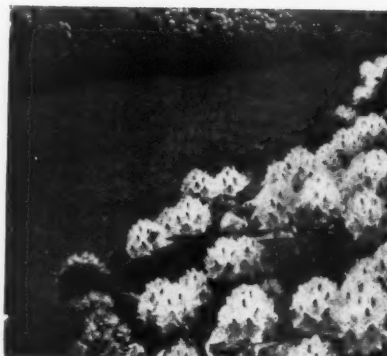
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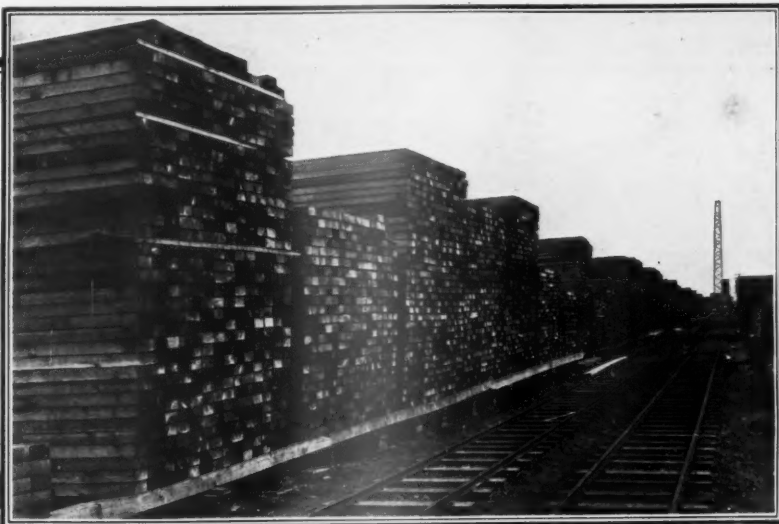
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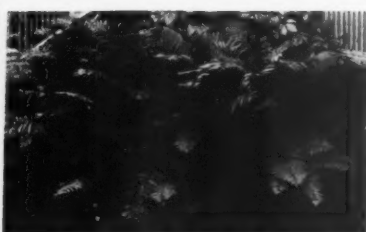
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Committee on Land Uses Meets

The Committee on Public Land Uses, created as an outgrowth of the meeting held in Washington on December 9 by the Federated Societies to discuss the subject of land uses, held its first meeting on February 15, and effected its general plan of work. The function of the committee is to assemble all the information available bearing upon the subject of land uses, to organize it and report back with recommendations for future action.

At its meeting on February 15 the committee took initial steps to bring together information that will be of value in determining the bases of a sound land policy for the United States. With this information the committee hopes to portray the present uses of land, so far as data is now available, and the present trends of land utilization in the United States. The committee believes that once existing information is assembled, organized and digested, it will form the groundwork for future studies and developments looking the highest forms of land utilization. It is hoped that in the course of several months the committee will have its work completed and will be able to report back to the conference.

Members of the committee are:

Horace M. Albright, of National Park Service.

Ovid M. Butler, of The American Forestry Association.

Dr. L. C. Gray, of the Department of Agriculture.

John Ihler, of the Chamber of Commerce of the United States.

Dr. Vernon Kellogg, of the National Conference on Outdoor Recreation.

Dr. L. C. Kneipp, of the United States Forest Service.

Dr. Elwood Mead of the Department of the Interior.

Dr. John C. Merriam, of the National Parks Association.

Wilbur A. Nelson, of the University of Virginia.

Frederick Law Olmsted, representing City Planners.

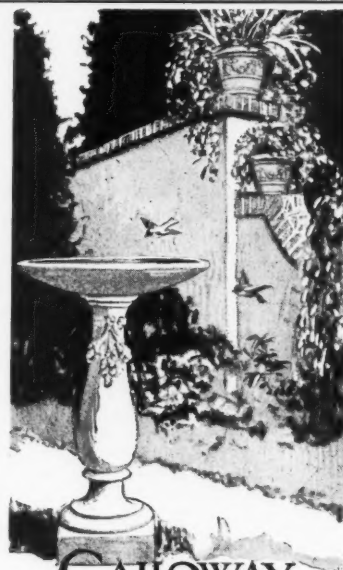
Dr. George Wehrwein, of the Institute for Research in Land Economics.

Dr. John M. Gries, of the Department of Commerce.

Increasing Connecticut's State Forests

The area of the state forests has been increased three fold during the past two years. To properly supervise the thirteen forests widely distributed over the state, the Department of Forestry is therefore asking for \$75,000 instead of its present appropriation of \$30,000.

The Commission on Forests and Wild Life, of which Senator Walcott is president, is requesting \$200,000 for the purchase of state forests in place of the \$150,000 appropriated by the last Assembly.



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251 Main Street Marysville, Ohio

CHICLE—Source of Chewing Gum

(Continued from page 229)

difficult. Some days he may tap from 5 to 7 trees then hike the many weary miles to the *hato* camp and carry his collected *bolsas* of latex with him.

The latex is cooked in a 40- or 50-gallon open sheet iron or aluminum kettle. The boiling process is simple and takes from 1 to 2 hours, depending upon the amount of latex in the kettle and its purity. During the cooking it is constantly stirred by a long paddle or stick revolving and aerating the mass by a circular motion in such a manner that the gutta or gum content remains as a unit in the center of the kettle. The water is thrown to the sides by the centrifugal action and evaporated. When a 33 per cent moisture content has been reached the mass coagulates and the kettle is removed from the open fire. Its contents are thrown out on a greased canvas to cool. Cooling completes the gum "set up" and it is then worked into molds or *marquettas* which weigh about twenty-five pounds. It is now ready for delivery to the contractor by the *chiclero*.

In Peten this gum is baled, using four *marquettas* to the bale and 2 bales a mule. It is then carried by animals through muck and over muddy roads, belly deep for the most part, for 7 days and *foten* more until El Cayo in British Honduras, is reached. From there it is transported downstream by *pitpan* native boat to Belize for shipment by steamer to the United States.

The gum on arrival is, of course, crude. First the blocks must be ground up and the chicle kiln dried to reduce to a minimum the moisture content. It is again cooked, mixed with substitutes and confection, flavored, kneaded, pressed and finally cut, dried and wrapped in the form and shape that we know as chewing gum.

Another Park Museum

A museum will be built in the Harriman State Park in the Highlands of the Hudson with funds granted by the Laura Spelman Rockefeller Memorial, at the request of the committee on outdoor education of the American Association of Museums. It will be a simple structure, costing about \$7,500, but will be the centre of an extensive outdoor museum, which will display under natural conditions examples of every tree, shrub and herb found growing in the Harriman State Park. These exhibits of the vegetation of the Park will also be supplemented by a menagerie, large enough for ample inclosures, showing all of the animals native to the Hudson Highlands region in natural environments.

Prepare now for DUSTLESS ROADS this summer



The Solvay booklet will tell you how you can maintain smooth, dustless paths and drives at small cost and with little effort.

Solvay Calcium Chloride, a white, odorless material, is spread on the surface, absorbs moisture from the air, retains it on the road, keeping it slightly moist, firm, compact and dustless at all times.

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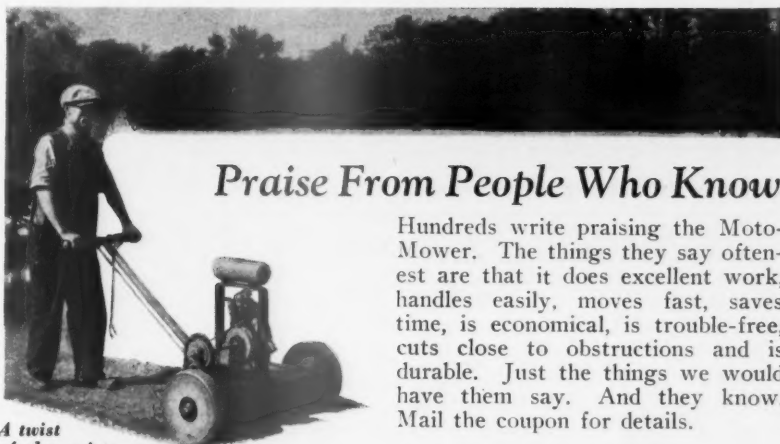
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3290 Douglas Fir, 12 to 18" xx.....	\$35.00	\$270.00
4800 Austrian Pine, 8 to 10" x.....	17.50	139.00
9050 Mugho Pine, 2 year Seedlings.....	3.00	18.00
3250 Colorado Spruce, 4 to 7" x.....	12.00	75.00
34000 White Spruce, 6 to 9" x.....	4.00	25.00
15000 Red Pine, 18 to 30" x.....	25.00	175.00
5000 Scotch Pine, 18 to 30" x.....	20.00	135.00
4300 Japanese Barberry, 18 to 24" x.....	15.00	90.00
14000 American Beech, 6 to 12" Seedling.....	4.00	24.00
3000 American Beech, 12 to 18" Seedling.....	6.00	40.00

And this is only a small part of our complete list of seedlings and transplants—we also furnish all varieties of trees and shrubs in large sizes for immediate effect, at similarly low prices. Write for our 1927 Short Guide and Price List.

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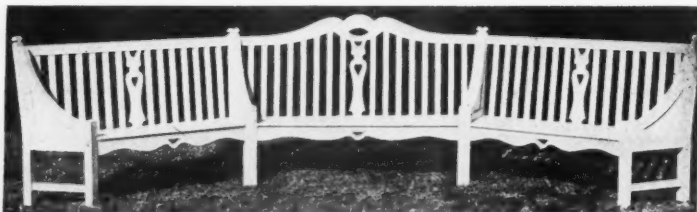
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Order Plants Now—While They Last

	ft. Each
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FOR NEW AND OLD LAWNS

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1 100 lb. Bag.....	\$1.50	1 Ton in Bags.....	\$20.00
4 100 lb. Bags.....	\$5.00	Carload prices on request.	

All prices f. o. b. shipping station
Write for FREE Booklet, "Soil Improvement"
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Progressive Legislation in Vermont

The Vermont Legislature of 1927 has passed two progressive forestry bills, and Governor John E. Weeks in his inaugural address recommended an \$8,000 increase in the appropriation for purchase of State Forests and an increase of \$3,000 a year for general forestry purposes.

One of the bills passed will allow Commissioner of Forestry R. M. Ross to purchase additional land for tree nurseries. The present annual output from Vermont State Nurseries is 2,000,000 transplants, but within three years it is planned to have an output of 5,000,000 transplants.

The other bill passed by the present legislature is a forest fire prevention measure. This gives the Governor authority to proclaim a closed fire season during periods of extreme drought. During such a closed season it is unlawful to build fires in or adjoining forest land for the purpose of brush burning, camp fires or other lawful purposes.

State Plants Forest as Memorial to Pettis

A forest in memory of Clifford R. Pettis for sixteen years Superintendent of State Forests and for twenty-five years a valued employee in New York State's forest service, will be planted just as soon as a satisfactory site can be chosen by the Conservation Department.

New Areas for Eastern National Forests

Lands to the value of \$572,000 were authorized for purchase by the National Forest Reservation Commission on March 7, as additions to Eastern National Forests, from the White Mountains in New Hampshire, to Minnesota and Arkansas. These lands consist of 69 tracts having a total area of 96,038 acres.

The largest tract consisted of 42,819 acres situated in Georgia. It is an important addition to lands which will protect the headwaters of the Savannah and Chattahooche Rivers.

In Pennsylvania the purchase of 2,372 acres was authorized, located upon the watershed of the Allegheny River, one of the tributaries of the Ohio River which contributes largely to its disastrous floods.

In Tennessee 4,405 acres is to be acquired upon the headwaters of tributaries of the Tennessee River, and protecting the Government investment in the Muscle Shoals reservoir and dam.

Other authorizations will cover purchases in Virginia, West Virginia, North and South Carolina, Arkansas, Michigan, Minnesota and New Hampshire.



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Highest quality plants shipped from the Appalachian Mountains in any quantity. For specimen and special planting we furnish nursery-grown stock from our Stroudsburg nursery. Old English Boxwood. Rare spec. | Our General Catalog mens, 2 to 7-ft. spread, now available. | mailed on request.

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4 Year Stock Averaging 5"-10"

Expressed free within 300 miles of N. Y. City

1,000 or more	\$37.00	per thousand
5,000 "	"	34.00 "
10,000 "	"	31.00 "
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Delphinium, belladonna, sky blue, 2 yr. plants,	per doz.	\$2.50
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Pansy, choice transplants, May 1st to 15th delivery, Prepaid by Express or Parcel Post.	Per 100	\$5.00

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Three More States Seek Forest Nurseries

Demand for tree planting stock in Nevada, Iowa and Minnesota has resulted in efforts in each one of these states to establish forest nurseries to grow and distribute forest planting stock at cost. It is probable that in each case the state will cooperate with the Federal government in these projects under Section 4 of the Clarke-McNary Act. Governor Scrugham of Nevada is keenly interested in the establishment of a nursery at the Nevada Industrial School, located in Elko.

In Iowa a bill has been introduced in the legislature calling for an annual appropriation of \$10,000 to be expended by the State Forester under the State Department of Agriculture. It is expected that this will be handled in cooperation with the forestry work of the Iowa State College.

In Minnesota, there is a bill before the legislature to maintain a state nursery and to distribute forest tree planting stock at cost to private land owners. It is understood that this bill was drawn by representatives from the Minnesota Section of the Society of American Foresters with the advice and approval of the Minnesota Conservation Council and the State Nurserymen's Association.

A Town That Owns Its Trees

(Continued from page 209)

lot, nor shall any lot be subdivided for the purpose of building more dwelling houses than one on one acre."

A later provision in these deeds allowed for a modification of these regulations by a two-third vote of resident owners or tenants. Tradition has it that many years ago such a meeting was held and a vote was taken abolishing the rules but there appears to be a definite lack of confirmation regarding this action.

Plainly enough, they believed in plenty of well-shaded space in those days. What modern development company, be it railroad, "realtor," or whatnot, would insert such limitation on the saleable square footage of its land.

Kentucky Meets Fire Season Successfully

The Kentucky Forest Service entered its first fire season with considerable trepidation. Nearly 400,000 acres of land had been listed for protection by owners since June, 1926, and the cent per acre paid into the treasury. Organization work was well under way, but it had been impossible to give the wardens thorough instructions and very little educational work had been accomplished. A good showing was desired but the possibilities of securing wished for results appeared slight.

What happened was that rains began to fall with the leaves and continued with but few intervals until January. During a few days only were the leaves dry enough to burn. The chief wardens thus had plenty of time to strengthen their organizations and to do much needed educational work. Only three fires occurred. The largest burned nearly 150 acres, but did little damage because of humid conditions. The organization is now in much better shape for spring work and has a mark of four one hundredths of one percent of land burned over as an incentive for future efforts.

Recreation Bond Issue Reported In Illinois

The legislature of Illinois is considering a measure which proposes to submit to a vote of the people of the state at the next general election the question of issuing bonds in the sum of twenty million dollars to be used in buying marsh and other lands for hunting and fishing purposes.

If adopted at the referendum election the state department of conservation would be authorized to acquire the land.

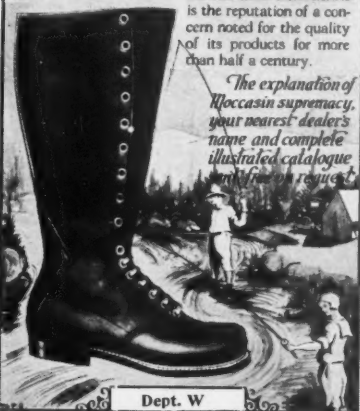
TRUE MOCCASINS

BASS MOCCASINS HAND-SEWED Best for All Outdoor Purposes

Fishing or hunting, hiking or camping, you'll find Moccasins the lightest, most flexible and most comfortable footwear you've ever worn.

Behind BASS MOCCASINS is the reputation of a concern noted for the quality of its products for more than half a century.

The explanation of Moccasin supremacy, your nearest dealer's name and complete illustrated catalogue and price on request.



Dept. W

G. H. BASS & CO.
WILTON, MAINE.

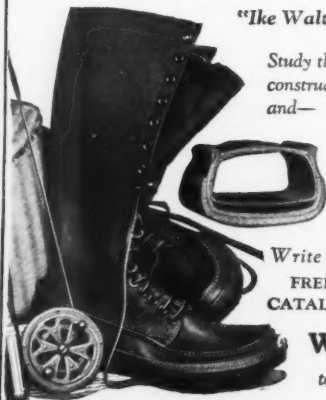
Russell's "Ike Walton"

There are other good moccasins for fishing, but none so good as the "Ike Walton" with its exclusive patented "NEVER-RIIP" hand seam and double vamp—No needle holes piercing from inside to out—Water can't seep through.

If you want the best get—

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Study this construction and—



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The Original American Footwear

Mention AMERICAN FORESTS AND FOREST LIFE—it Helps

Mother Nature's Pantry

For those who might some day suddenly find themselves marooned on an island or lost in the heart of the woods with perhaps no luscious food to appease their ravenous appetites, we pass along this extremely interesting information which comes from Warden John D. Roberts, Boy Scout Executive of Meriden.

"Cat-tail biscuits can be made from dried cones of ordinary cat-tails ground fine and sifted. Bread flour can be made from wild rice, sunflower seeds or great bull rush roots. Rock tripe, the crinkly gray fungus which clings close to the surface of rocks, if scraped off and boiled, is both palatable and nutritious. Tea can be made from sassafras, pennyroyal or spearmint. Salads can be made from watercress, crinkle-root, yellow adders' tongue, clover or boom rape.

"Other foods such as common mallow, wintergreen, wild ginger, Indian cucumber, slippery elm, basswood buds, club beech or ironwood buds, wild anise, birchbark and many berries may be eaten raw."

Forestry Committee of National Fire Waste Council Organized

Through the offices of the Natural Resources Division of the Chamber of Commerce of the United States, a forestry committee of the National Fire Waste Council has just been organized. The committee held its first meeting on March 16 and formulated a program which will bring forest fire prevention and suppression actively into the work of the National Fire Waste Council.

This Council is a voluntary association of eighteen national organizations and four governmental bureaus interested in the reduction of fire waste. It acts in an advisory capacity to the Chamber of Commerce of the United States in its nationwide fire prevention program. It likewise participates actively in certain phases of fire prevention work through standing committees. It is a powerful force in directing public opinion to the menace of fire and its educational work in this field during the past three years has been of a most outstanding character.

The formation of a forestry committee of the Council will serve to make the forest fire menace a part of the Council's activities and to provide a direct and organized medium for the dissemination throughout the whole country of educational material on forest fires. One of the first acts of the new committee will be the preparation of the bulletin on forest fire prevention for national distribution during American Forest Week.



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Instantly it turns any rowboat into a fast, safe, powerful launch. With it you have a motorboat on every waterway. Tirelessly it speeds you to the choicest picnic coves that lie secluded miles away. Through morning mists it brings you to far-away fishing grounds—takes you on delightful week-end cruises and memorable vacation adventures.


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The Super Elto
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Free, Valuable Folder "RESTOCKING BOB WHITE," including letters from prominent customers.
M. E. BOGLE, 510 East Elmira, San Antonio, Texas
Largest quail raiser in the world.

Big Game! Big Trout!
ALLAN RANCH "Where Autos Can't Go"
In the Big Rockies
Dude Ranch. Modern. Natural Warm Springs. Pack Train Trips—Sightseeing, Hunting, Fishing. How about your Summer Camping and Fishing Trip? Booklet.
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A collection of minerals and a collection of semi precious stones. What have you to offer? Write to
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If you do not find what you want advertised in
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Write to Service Department
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Eggs for Spring shipment. Special prices on quantity orders. Feeding and rearing instructions free with order
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Now is the time to plant it.
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Plants to attract birds—game. Helpful literature free. Write
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Foxes at fur
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Wisconsin bred—every fox pedigreed and registered—every pair of 1927 pups from prize winning ancestors.

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Meat Tenderer
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TYLER'S IDEAL FIBER CUTTER makes any steak so deliciously tender you can cut it with a fork. No hard pounding—no bruising. Meat retains nutritive juices. Has half a dozen other uses. Nickel-plated sharp steel blades. Sold direct to homes by Tyler representatives, or by mail, price, \$1.50. Ideal gift at any time.

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Wisconsin to Vote on Forest Tax Amendment

As this issue goes to press announcement comes that the Wisconsin legislature has just passed for a second time the bill which would authorize the State to amend its constitution so that a forest tax law could be enacted. The constitution now prohibits the application of a special tax law to encourage reforestation and the protection of forests as a timber crop. The bill just passed, to become finally effective, must be voted on at a general election, which will be held on April 5. Friends of forestry are active in support of the bill and it is hoped that it will be endorsed at the coming election in order that the State may enter into a progressive program of forest taxation reform.

Connecticut Parks Entertain More Visitors Than The Yellowstone

Connecticut State Parks last year were visited by nearly half as many people as visited the entire system of National Parks during the year 1925 in spite of the fact that the former occupy an area of 7,000 acres as against the 7,000,000 of Government park land. This news is revealed by the Connecticut Forestry Association.

During the first ten months of 1926, more than 730,000 people, nearly half the population of Connecticut, visited that state's forests as against the 1,760,521 who visited National Forests the year before. Statistics show that the Government spends about \$2.00 a year per visitor while Connecticut with its limited appropriation for park purposes spends about 10 cents a year for each visitor.

Hammonasset Beach, Connecticut's best known park, is visited every year by about 500,000 persons or about three times the annual attendance of Yellowstone Park. The secret lies in the fact that this, and other Connecticut parks, lie in the center of populated areas while the National Parks are farther removed.

Reforestation by Los Angeles City Schools

Aided by the county forestry department and Conservation Association of Southern California, the Los Angeles city schools have undertaken to reforest a burned-out watershed not far from the city. Through the past winter about 1000 pounds of seed were collected, including that of Mountain pine, California bay and a number of the scrub oak species. Other chaparral species are also represented and several hundred seventh and eighth grade boys have had a hand in sowing it over the burned area. In addition to this work, several thousand Coulter pines have been planted by the school boys, more than six hundred of whom took part in the actual planting work.

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The "Mountie" isn't lonely any more

WHEN the supply ship steams south from the last outpost of civilization in September, not to return until the following July, loneliness will never again beset the lives of the Royal Canadian Mounted Police who patrol that vast, wild area.

Radio is now brightening the long winter nights with music, special programs, messages and greetings from their "home folks."

And in the receiving sets of the "Mounties" is the best equipment obtainable. The batteries they use *must* be dependable. They *must* serve until new supplies are brought in a year later.

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BURGESS BATTERY COMPANY
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BURGESS
RADIO BATTERIES

United States a Large Lumber Importer

Shifting during the last twenty years from an important exporter of forest products the United States is today a preponderant importer of lumber, pulp wood and associated materials, according to the official foreign trade figures for 1926 just made public by the Commerce Department.

In 1906 the figures show that our total forest products exports, except furniture and containers holding other merchandise, were 2,640,000,000 board feet against imports of wood products equivalent to 1,651,000,000 board feet, leaving an excess of exports for that year of 989,000,000 board feet.

The 1926 figures show that the trade has been completely reversed with exports amounting to 3,623,000,000 board feet against imports of wood products equivalent to 6,689,000,000, registering an import balance of 3,623,000,000 board feet.

NOTICE

GARDEN BOOKS OLD AND NEW, compiled by Mary Evans, publication of which was announced in our March issue, may be obtained from the office of The Pennsylvania Horticultural Society, which published it, at 1600 Walnut street, Philadelphia, Pennsylvania. Price, \$1.00.

Tom Gill Enters New Field

Tom Gill, Associate Editor of AMERICAN FORESTS AND FOREST LIFE for the last fourteen months resigned his position on March 1 to become affiliated with the Charles Lathrop Pack Forestry Foundation. During six months of each year Mr. Gill will be engaged in editorial and educational work for Mr. Pack in this country and during the remaining six months he will work in the tropics under the direction of the Tropical Plant Research Foundation. Mr. Gill, in addition to being a magazine writer, has spent much time in the tropics and is well known for his contributions to tropical forestry.

During the year that Mr. Gill has been with this magazine his work has been of an outstanding character, and the many readers who have become acquainted with him through the magazine pages will share the editor's regret at his loss.

Pennsylvania State Forest Visitors

Since Pennsylvania began its forest land purchase program, 1926 has seen the largest number of visitors to the State Forests in that state. The number of visitors totalled almost a million: hunters, 215,700; visitors in State Forest Parks, 145,900; visitors at public camps, 111,824; visitors in permanent camps, 93,345; fishermen, 34,825; visitors on forest observation towers, 32,649; visitors in temporary camps, 14,922; and other uses 303,370.

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Discriminating Buyers Today

You too would be but another of the happy owners owning one of these Distinctive Dogs. Our kennels house the Best blood obtainable in England or America. Every dog registered. Some from imported stock.

Stud Dogs of Finest Breeding
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IRISH TERRIERS

Have good dispositions; Make Ideal House and Auto Dogs; Love to Hunt and are devoted Companions. Handy size. Immune to most diseases.

A.K.C. Registration Guaranteed
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A FOREST SAVED—
—IS A FOREST RAISED

Fire control and prevention is an important branch of sound forest management. Protect your forests with adequate fire detection and fighting equipment.

FOX FARMING ON THE HOME PLACE

"Probably no other live-stock enterprise pays larger returns for the money invested."—U. S. Gov't Bulletin No. 1151.

SHERBORN FOXES

In addition to the pleasure and profit derived from raising Silver Black Foxes, an added attraction can be had by using part of the ranch for the growing of beautiful trees and shrubs. On my ranch at Sherborn, Mass., I have fifty-four different kinds of trees and flowering shrubs, which makes a handsome setting for my choice collection of Silver Foxes.

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are recognized by the best trade for the highest degree of quality and type —which is the foundation of profits in the Silver Fox business.

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Murray Foxes have won the highest Honors in American National Shows including a
GRAND SWEEPSTAKES
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Our Booklet "BLOOD WILL TELL"
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Let us send you the following:

A. The U. S. Government
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C. The Story of three ladies who made \$25,000 in Foxes.

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Tarnedge Foxes



FOX FARMING: If you have a farm or suitable suburban place you can raise Foxes—the same effort that you give to chickens or pigs will produce *real profits* with Foxes.

To enable you to study the business properly let us send you information free to enable you to consider Foxes in your 1927 plans—for profits and pleasure in making 1927 count.

Send a postal card for this authoritative and very interesting material about Foxes. Address:

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THE PRIZE WINNING RANCH
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Catalogue
SABATTIS, N. Y.

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FOREST ENGINEER

TIMBER ESTIMATES AND VALUATION
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31 CENTRAL ST., BANCOR, MAINE

The Army of Silent Tree Killers

(Continued from page 222)

The problem of combating such a pest as the spruce bud worm over large areas is not altogether hopeless, even though the ordinary methods of control are out of the question. Two methods offer hope of success in dealing with such problems. The first method lies in forest management. By a careful and thorough study of the life history and habits of the various insect species, it is usually possible to find a weak spot where they may be combated with success. As an illustration of this point, a careful study of the great spruce bud worm outbreaks has revealed the fact that epidemics are possible only where the stand is made up of a high percentage of mature balsam. Management in the great spruce-balsam areas of Canada and New Found-land are being directed toward removing as rapidly as possible, the mature, pure balsam stands and the restocking of these stands with a very high percentage of spruce. This plan, together with a comparatively short rotation, should in time eliminate excessive losses caused by the bud worm.

With some other species it has been found that stands of mixed species give a certain immunity. In still other cases it seems advisable at present not to

attempt to grow certain trees in certain areas, but to select some equally valuable species which will do well on the area in question.

Forest management looks more to the protection of a future crop than to the control of the pests preying on the present stand. There is at this time apparently only one method which offers a possibility of controlling forest tree defoliators over large areas. The airplane equipped with a hopper for carrying poison dust unquestionably would prove effective. Poison dust released over infested crops has proven highly satisfactory in controlling a number of leaf-feeding insects. This method has been carried out on cotton and alfalfa fields, on peach and apple orchards, and on catalpa groves. The latter experiment performed in Ohio gave a one hundred per cent control of the defoliating catalpa sphynx on a heavily wooded area.

Dusting by airplane has many advantages, such as the rapidity with which areas can be treated. With proper apparatus it should be possible to cover 30 to 50 acres per minute, exclusive of the time required for landings. The character of the ground, other than the fact that landing fields are essential, has little bearing upon control from the air. The amount of poison required to cover a given area by the airplane method is decidedly less than by any other means. The cost of application, barring accidents, is less than by any other known method.

On the other hand, the one great disadvantage is the extreme hazard in flying at the low altitude required in such work. The pilot skimming over the tree tops is utterly helpless to save his life or the expensive machine, should his engine fail. The next few years are likely to see great advancement in man's conquest of the air, and undoubtedly methods will be so perfected that war can be carried on against forest insects, even in remote regions by use of the airplane and poison dust or gas.

Present control procedure thus resolves itself into a matter of determining the species of insect causing the loss and finding the economic practicability of positive control measures. In the case of the bark beetles corrective measures are often feasible while with the defoliators present, efforts are limited largely to future protection save in exceptional cases. Airplane dusting developments, however, give promise for the first time of making general control possible in the future.

The End

Galvanized Steel Towers FOR THE Forest Service

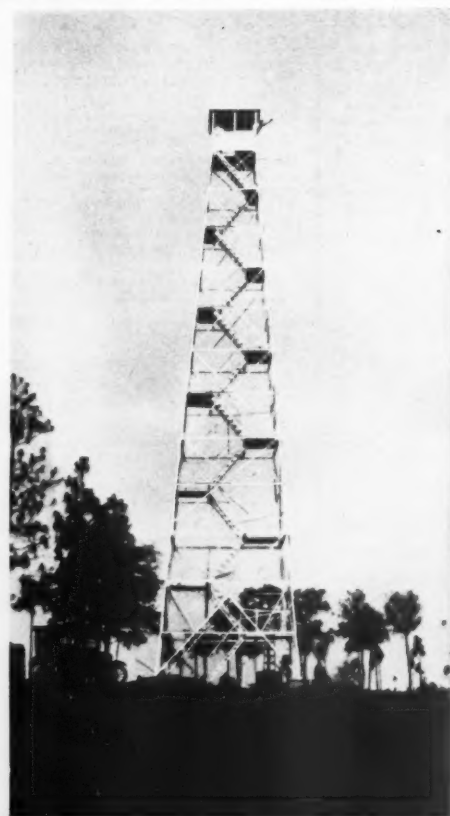
Our long experience in designing and building a great variety of steel towers has enabled us to produce this superior line of towers for Observation and Fire Protection purposes.

The house at the top of the tower is 7-ft. square. It provides comfortable quarters for the observer.

The illustration shows an 80-ft. tower of the LS-40 type. It was erected at Kirbyville, Texas, for the State Forestry Department. This tower has a regular stairway, with a railing on both sides, from the ground to the cabin. It is safe and easy for anyone to climb. The prices are moderate.

AERMOTOR CO.

2500 Roosevelt Road
CHICAGO, U. S. A.



Brush Burning Causes Many Tennessee Fires

Last year 96 forest fires in Tennessee were the result of carelessness in brush burning and more than 12,000 acres of woodlands were thus burned over.

"DO SOMETHING" PRIZES American Forest Week The Year Around

The American Forestry Association is offering a series of prizes for boys and girls, fifteen years old and under, who, during 1927, do worthwhile things in reforestation, forest fire prevention, or any other field of forestry. Our "Do Something" folder tells all about this great game of good citizenship. Order a supply now to distribute to schools, boy and girl scouts, and other juvenile organizations during American Forest Week. The folders will be sent free and in quantities up to 500 to a person.

Other American Forest Week material which the Association has available includes:

Forest Planting Step by Step, 3c. each; Forest Activities for Everybody, 5c. each; The Forest Fire Helpers, a Masque, 5c. each; envelope stuffers, 50c. per 100; Fire Protection posters, \$2.50 per 100; Shade and Ornamental Trees, 2c. each; Forest Conservation, 25c. each; Women's Clubs and For-

estry, 5c. each; Arbor Day and Planting Programs, 2c. each; Teaching Forestry in Camps for Boys, 5c. each; The Last Stand of the Wilderness, 5c. each; correspondence stickers (American Forest Week), \$2 per 1000.

American Forest Week is April 24-30. Order now. You may remit by stamps, money order or check.

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WASHINGTON, D. C.

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Ipana Tooth Paste
believe in protect-
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Insure your family proper sanitary protection and comfort at your summer home. Approved by leading sanitary engineers. Write for full information. Special resort agents wanted.

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"Is the best single item of fire-fighting equipment which has been introduced for several years" says a U. S. Forest Service Official.

"The advantage of this torch over fire brands, wick torches, etc., is so great that no comparison can be made."

"One man can set 15 or 20 times as many fires in a given period of time as could be set with brands or wick torches. If material is slightly damp and would require building of bond fires with wick torches, etc., the same material can usually be ignited as it lies with Hauck torches."

"In grass types we sometimes slowly set a line of fires with a Hauck torch and beat out the outer edge, thus practically constructing our line with the torch alone. In this connection the strong blast of the torch is a great help in that it drives all sparks and flames in the same direction."

HAUCK torches are also successfully used in firing slag and brush piles for the disposal of same to reduce the fire hazard.

For Full Information Write To

HAUCK MANUFACTURING COMPANY

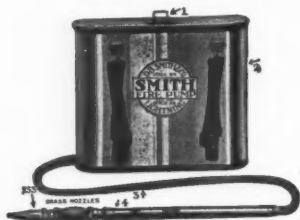
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*A Well Built Fire Pump For
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Easily Carried and Operated by Anyone

The Indian can not be excelled for fighting forest fire, brush fires, grass fires, in fact for fighting fires anywhere.

The Knapsack tank, holding about 5 gallons, is conveniently carried on the back, similar to a pack basket. It is made of heavy galvanized steel or solid brass as ordered and has a detachable strainer, preventing any sediments or rubbish entering when dipped into stream or lake for filling. The filler cover is brass. The pump is entirely of heavy brass and has no leather packings or parts to play out or wear out, and is always in working order ready for any fire emergency. One brass cylinder works back and forth inside the other, and slow easy pumping throws a powerful 50-foot stream to any point desired.

The Indian is easily carried over logs and hilly places, and quickly extinguishes fires in trees, crotches, stumps, etc., and is highly recommended. Used on private estates, private and public parks, private and public lumber preserves, state and federal preserves. No forest either small or large should be without this fire pump.

*Write for descriptive circular and prices on the
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Membership Emblems

Our artistic membership emblem was designed by one of the largest emblem manufacturers in the world. It is octagon shaped with gold beveled edges. The tree is modeled in gold and covered with transparent green enamel. The A. F. A. is inlaid in dark green enamel.

Only by purchasing in large quantities are we able to offer this pin at such a low price.

Furnished with screw post for attaching to coat lapel or pin with safety lock attachment. When ordering please state type desired.

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Mention AMERICAN FORESTS AND FOREST LIFE—It Helps

Proposes New Department

A bill calling for the establishment of a Department of Natural Resources, which will include a Department of Mines and Oils, Forests, Parks, Fish and Game has been introduced in the State Legislature of California. The director of this Department would be appointed by the Governor with authority to appoint the heads of the subsidiary Departments, subject to the Governor's approval. The proposed bill provides a salary of \$6,000 for the Mines and Oils and Fish and Game heads, but no provision is set forth for the Departments of Forests and Parks. The measure it is said, is approved by the new Governor, C. C. Young, and is strongly endorsed by many individuals and organizations throughout the State. Its passage is therefore looked upon as likely.

Idaho Forestry Law

Recently the Idaho Senate and House held a joint meeting, with Governor Baldrige presiding, and discussed the state forestry law. The State Forestry Board consisting of the Governor, Attorney-General F. L. Stephan, Secretary of State, F. E. Lukens, Superintendent Mabelle M. Lyman, Auditor E. G. Gallet, Land Commissioner George N. Carter, F. G. Miller, forestry dean, University of Idaho; W. D. Humiston, of the Potlatch Lumber Company; C. A. Barton, of the Boise Payette Lumber Company, Worth S. Lee, of the Wool, Cattle and Horse Growers' Association; and C. K. McHarg, Jr., representing the United States Forest Service. The board announced its policies in administering the state law for the coming year would be to limit the fire assessments on private, cut-over and burned-over land to 6 cents an acre, on the assumption that the Clarke-McNary fund would take care of the balance. The Potlatch Lumber Company, according to W. D. Humiston, paid 9 cents an acre last year for protection, having a very light loss. Mr. Humiston claimed that this heavy investment in protection is responsible for the light fire loss.

Correction

Through a misunderstanding it was announced in the March issue of American Forests and Forest Life that Paul G. Redington became Chief of the Biological Survey on February 16 and Mr. Walter C. Henderson, Associate Chief. Mr. Redington will not become Chief of the Bureau until May 9, at which time Dr. E. W. Nelson, the present chief retires to take up research work. Mr. Redington's present position is Associate Chief. Mr. Walter C. Henderson was appointed Associate Chief some time ago.

The New York State College of Forestry

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A **FOUR-YEAR** undergraduate course is offered in General forestry with the degree of Bachelor of Science and special courses leading to the degree of Master of Forestry, Master of City Forestry, Master of Science, Doctor of Philosophy, and Doctor of Economics; a four-year course in pulp and paper manufacture, and a short course each spring in dry kiln engineering and lumber grading are given. The State Forest Experiment Station of ninety acres at Syracuse, the Charles Lathrop Pack Experimental Forest of 1,000 acres at Cranberry Lake, the Charles Lathrop Pack Demonstration Forest of 2,250 acres in the Lake George-Warrensburg district, three other experiment stations, the Roosevelt Wild Life Forest Experiment Station, a modern pulp mill, a well-equipped sawmill, a complete dry-kiln plant, the biological laboratories, and an excellent reference library afford unusual opportunities for research and instruction. Students may elect work in nine different fields.

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Field work in the magnificent Oregon forests, easily accessible from the school. The largest logging operations and lumber manufacturing plants near at hand.

Summer work readily obtainable in the Forest Service, in logging camps, and in the mills.

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Opportunities for full technical training, and for specializing in forestry problems of the northeastern States and Canada.

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Opportunity is given to specialize in General Forestry, Logging, Engineering, and Range Management.

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PACIFIC PORTABLE FIRE FIGHTING PUMPERS

The Tried Fire Fighter



Showing lack of vibration. Pumper can be handled while pumping. Never needs to be staked down; stays put where set.

WEIGHT ONLY

**70
POUNDS**

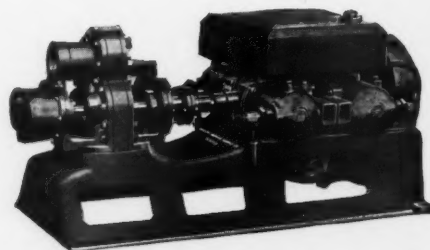
Using Type "A" Pumper, Camp Kawpowin fire of 1924.



Pacific Type "N" Pumper will throw a stream 100 feet horizontally

On the Pacific Coast, where the Forest Fire Menace is greater than in any other part of the country, and where the tracts of timber are greater, and where the trees grow denser and where the undergrowth is thick and high, there Pacific Pumpers have been fighting for years, there the Pacific Pumper has established itself as the most efficient, enduring and economical equipment for battling fire.

More Pacific Pumpers are working in the woods of America than all other makes and kinds combined—actual accomplishment is the reason for the popularity of Pacific Pumpers.



This little pumper, at 150 pounds pressure, will put water to the top of a 345-foot hill through 1½-inch rubber-lined hose. It is capable of pressures up to 200 pounds.

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